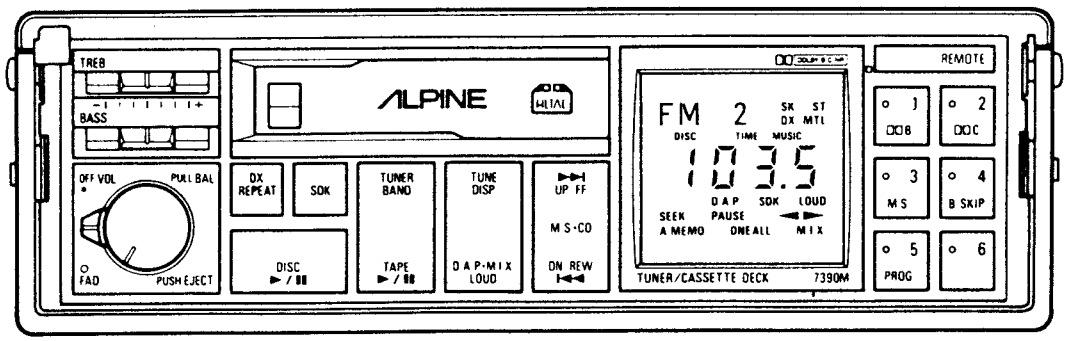
ALPINE SERVICE MANUAL

Digital FM/MW/LW Cassette
(With built-in CD changer controller)

●For the cassette deck mechanism parts (GR75E020) of this model, refer to the GR Series Service Manual (Part No. 68P20504W01).



7390M

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Specifications

FM RADIO

Intermediate Frequency	10.7±0.1MHz
Frequency Range	87.5~108MHz
Usable Sensitivity (Stereo, at 98.1MHz)	17.2dBf
Limiting Sensitivity (at 98.1MHz)	23.2dBf
S/N Ratio (Stereo)	48dB
Image Rejection (at 106.1MHz)	40dB
IF Rejection (at 90.1MHz)	60dB
Distortion (Input 1mV, at 98.1MHz)	1%
Frequency Response (at 98.1MHz, Ref. 400Hz)	0±3dB (100Hz) −12±3dB (10kHz)
Stereo Separation (at 1kHz)	20dB
SK Sensitivity (at 98.1MHz)	25.2dBf

MW RADIO

Intermediate Frequency	450±5kHz
Frequency Range	531~1,602kHz
Sensitivity 20dB S/N (at 999kHz)	45.2dBf
S/N Ratio (at 999kHz)	44dB
Image Rejection (at 1,404kHz)	50dB
IF Rejection (at 603kHz)	60dB
Distortion (at 999kHz)	1%
Frequency Response (at 999kHz, Ref. 400Hz)	−3±4dB (100Hz) −12±6dB (4kHz)

LW RADIO

Intermediate Frequency	450±5kHz
Frequency Range	153~281kHz
Sensitivity 20dB S/N (at 218kHz)	52.2dBf
S/N Ratio (at 218kHz)	40dB
Image Rejection (at 272kHz)	40dB
IF Rejection (at 218kHz)	50dB
Distortion (at 218kHz)	2%
Frequency Response (at 218kHz, Ref. 400Hz)	−3±4dB (100Hz) −12±6dB (4kHz)

TAPE PLAYER

Wow & Flutter (JIS WRMS/MTT-111)	0.2%
Tape Speed (MTT-111)	4.75cm/sec. +3 to −1%
S/N Ratio (MTT-212)	DOLBY OFF : 52dB DOLBY B : 60dB DOLBY C : 65dB
Distortion (MTT-118)	2%
Frequency Response (at 1,000Hz, −3dB, MTT-256)	40~14,000Hz
Separation (MTT-141)	30dB
Crosstalk (MTT-121)	45dB
FF & RWD Time (C-60)	140sec.

GENERAL

Power Supply	14V DC
Pre-Out Voltage/Impedance	0.56V/10k ohms
Semiconductors	23 IC's, 66 Transistors, 36 Diodes, 15 Zener Diodes
Dimensions	Nosepiece : 171 (W) × 50 (H) × 15 (D) mm
	Chassis : 178 (W) × 50 (H) × 143 (D) mm
Weight	2.4kg

NOTE : Due to continuing product improvement, specifications and designs are subject to change without notice.

INTRODUCTION

The Alpine 7390M is a state-of-the-art compact disc changer controller, cassette deck, and FM/MW/LW digital PLL synthesized tuner combined in one DIN-size unit. It incorporates our most advanced full logic tape deck (the GR mechanism) and built-in controls which allow direct interface with Alpine's new compact disc changer, the 5952. To complete the package, we add the T-10 II tuner which provides ultra-wide frequency response, excellent signal-to-noise characteristics, and exceptionally stable reception. The 7390M was designed for in-dash installation in vehicles with 12-volt negative ground electrical systems.

Please read this manual thoroughly to familiarize yourself with each control and function. We, at Alpine, hope you receive many years of enjoyment from your new 7390M.

IN CASE OF DIFFICULTY

If you encounter a problem, please review the items in the following checklist. This guide will help you isolate the problem if it is really the head unit at fault. Otherwise, make sure the rest of your system is properly connected.

INITIAL TURN-ON

No Function or Display	Car's Ignition is off.	If connected per instructions, the unit will not operate with the car's ignition off.
	Power Switch off.	With the car's ignition on, turn the Volume Control clockwise to turn power on.
	Improper Connection of power leads.	Check connections of the power leads.
	Blown Fuse.	Check the fuses on the Ignition and Battery leads; replace with the proper value if necessary.
Functions OK but no Sound	Volume level too low.	Turn Volume Control clockwise to desired level.
	Processors or Amplifiers not turning on.	Make sure Remote-on Lead is connected properly; make sure processors and amplifiers are properly wired.
CD not functioning	Out of operating temperature range 50°C (120°F) for CD.	Allow the temperature of the car's interior (or trunk) to cool.
	Moisture condensation in the CD Module.	Allow the enough time for the condensation to evaporate (about 1 hour).

IN CASE OF DIFFICULTY

RADIO MODE

Unable to receive stations	No Antenna or open connection in cable.	Make sure the antenna is properly connected; replac antenna or cable if necess
Unable to tune stations in the Seek mode	You are in a weak signal area.	Make sure the tuner is in DX mode.
	If the area you are in is not known to be a weak signal area, the antenna may not be grounded and connected properly.	Check your antenna connections; make sure th antenna is properly groun its mounting location.
	The antenna may not be the proper length.	Make sure the antenna is extended; if broken replac antenna with new one.
Broadcast is noisy	The antenna is not the proper length.	Extend the antenna fully; replace it if it is broken.
	The antenna is poorly grounded.	Make sure the antenna is grounded properly at its mounting location.

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	Moisture condensation in the CD Module.	Allow the enough time for the condensation to evaporate (about 1 hour).

IN CASE OF DIFFICULTY

RADIO MODE

Unable to receive stations	No Antenna or open connection in cable.	Make sure the antenna is properly connected; replace the antenna or cable if necessary.
Unable to tune stations in the Seek mode	You are in a weak signal area.	Make sure the tuner is in the DX mode.
	If the area you are in is not known to be a weak signal area, the antenna may not be grounded and connected properly.	Check your antenna connections; make sure the antenna is properly grounded at its mounting location.
	The antenna may not be the proper length.	Make sure the antenna is fully extended; if broken replace the antenna with new one.
Broadcast is noisy	The antenna is not the proper length.	Extend the antenna fully; replace it if it is broken.
	The antenna is poorly grounded.	Make sure the antenna is grounded properly at its mounting location.

IN CASE OF DIFFICULTY

TAPE MODE

Cassette insertion not possible	There is a cassette already in the transport.	Eject the cassette in transport and remove.
	The cassette is being improperly inserted.	Make sure the cassette is being inserted per instruction in Owner's Manual.
Unable to Fast-Forward or Rewind; Fast-Forward or Rewind is very slow.	The cassette has been damaged or the tape is very old.	Eject the cassette and discard; using a damaged or very old cassette in your unit can cause damage to the transport.
Poor High Frequency response	Low quality recording tape.	Compare the sound with a cassette using high quality tape.
	Tape head dirty.	Clean the head per Owner's Manual instructions.
	Dolby activated for a non-Dolby recorded tape.	Make sure the Dolby functions are deactivated.
	Tape head out of alignment.	Return to Authorized Center for service.
Excessive tape hiss	Dolby not activated for Dolby encoded tape.	Make sure the proper Dolby function is activated.
Tape speed fluctuates	Dirty Pinch-rollers/ Capstan; Worn motor or drive belt.	Return to Authorized Center for service.

IN CASE OF DIFFICULTY

CD CHANGER MODE

No CD functions	DIN Control cable not connected.	Make sure cables for control and audio have been properly connected per the 5952.
	The CD magazine has not been inserted.	Install the magazine with at least one CD inserted.
Music skips excessively	The 5952 has not been mounted securely.	Follow the installation instructions in the 5952 manual for proper installation.
	The transit screws were not removed before installation.	Remove the Transit Screws and reinstall the changer.
	The mounting angle of the 5952 is excessive.	Remount the 5952 according to the directions given in the installation manual.
	The CD being played is dirty.	Clean the CD being very careful not to scratch it.
	The CD being played is damaged.	If the CD in question is cracked or warped, discard it as it could cause damage to the CD mechanism; if the CD is scratched at one selection only, skip that selection using the Music Sensor function to play the remaining selections.
Playback of 3" discs does not work	The 3" adaptor ring is not being used.	Place the 3" adaptor ring onto the disc before inserting into the magazine.

ERROR INDICATION FOR 5952

INDICATION	CAUSE	SOLUTION
E-01	Disc-change malfunction.	Consult your Alpine dealer.
E-02	Disc is in player mechanism.	Press the magazine eject button, and insert an empty magazine.
E-03 E-04 E-05	Disc-change malfunction.	If the code disappears within a few seconds, unit is O.K. If not, consult your Alpine dealer.
E-06	Disc-change malfunction.	Press the magazine eject button and pull out the Magazine. And check no error indication. Try again. If the magazine can not be pulled out, consult your Alpine dealer.
E-07	Magazine ejection impossible.	Press the magazine eject button. If the magazine does not eject, consult your Alpine dealer.
E-30	High Temperature.	Will disappear when the temperature returns to operation range.
EEEE	Misconnection or disconnection of CD changer.	Check connection between CD changer and control unit.
- - - -	No CD magazine in the CD changer.	Insert the CD magazine.
2- - -	No CD at No. 2 pocket of CD magazine.	Insert a CD into the No. 2 pocket of CD magazine.

FEATURES

- **FULL FRONT DIN™ CHASSIS**
- **CD CHANGER CONTROLS (When used with the Alpine 5952)**
- **HLTAC™ TAPE HEAD:**
  The HLTAC tape head provides an exceptionally flat frequency respon
- **QUICK RELEASE BRACKET (Q.R.B.):**
  Alpine's exclusive Q.R.B. design allows for easy removal of the 7390M maintaining memory. The 7390M may then be carried with the owne prevention.
- **PRESET ADDRESS:**
  The indicators on the Lite Touch™ preset buttons will light when you lets you know which preset station is on (in the Radio mode).
- **A. MEMO (AUTO MEMORY):**
  In the Auto Memory mode, the 6 strongest FM, MW or LW stations w automatically.
- **D.A.P. (DIRECT ACCESS PRESET):**
  D.A.P. allows the storage of FM, MW and LW presets on the same ba the need to press the TUNER/BAND button.
  Up to 6 FM and MW/LW stations can be mixed in the D.A.P. Band.
- **FULL LOGIC DECK WITH TRUE FAST FORWARD AND REWIND**
- **IGNITION "KEY OFF" PAUSE:**
  The tape head and pinch roller disengage from the tape when the igni but the cassette remains inside the deck.
- **AUTO METAL :**
  When a metal cassette tape is inserted, the tape mechanism automat metal tape equalization (70μsec).
- **REPEAT :**
  Permits repeat playing of a musical selection on the tape. In the CD r repeat a musical track or an entire disc.
- **DUAL PREAMP OUTPUTS :**
  The 7390M allows you to expand your system easily with Front and R and PREAMP Fader.
- **DOLBY* B NOISE REDUCTION**
- **DOLBY* C NOISE REDUCTION**
- **MUSIC SENSOR :**
  Allows you to access the beginning of the current or next musical sele tape using Fast Forward and Fast Reverse.
- **AUTO BLANK SKIP**
- **LITETOUCH™ 30-STATION PRESETS:**
  FM1: 6, FM2: 6, MW: 6, LW: 6, D.A.P.: 6
- **OPTIONAL WIRELESS REMOTE CONTROL (4390)**

* Noise reduction manufactured under license from Dolby Laboratories Corporation. "Dolby" and the double-D symbol are trade marks of Dol Licensing Corporation.

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  The tape head and pinch roller disengage from the taoe when the ignition is turned off, but the cassette remains inside the deck.
- **AUTO METAL :**
  When a metal cassette tape is inserted, the tape mechanism automatically adjusts to metal tape equalization (70μsec).
- **REPEAT :**
  Permits repeat playing of a musical selection on the tape. In the CD mode you may repeat a musical track or an entire disc.
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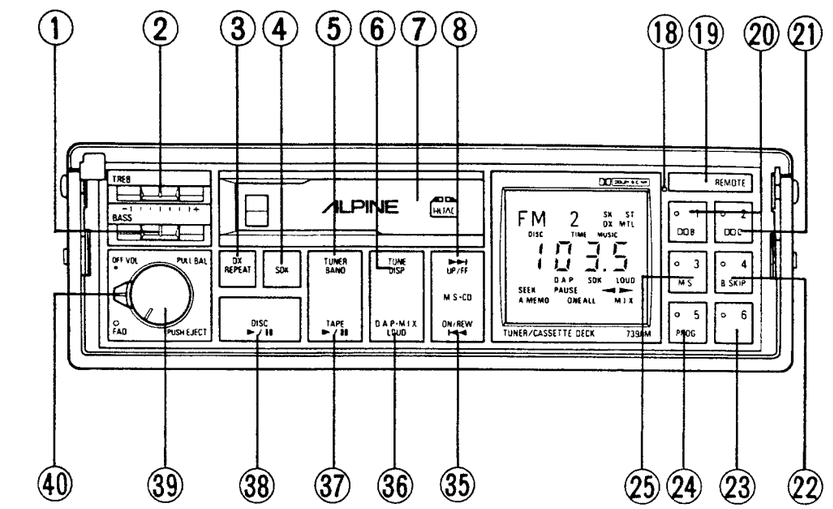
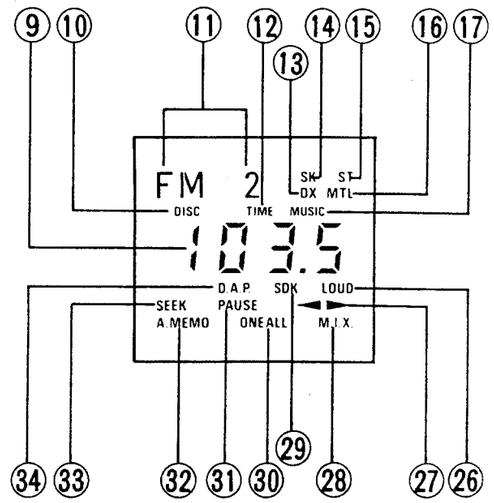
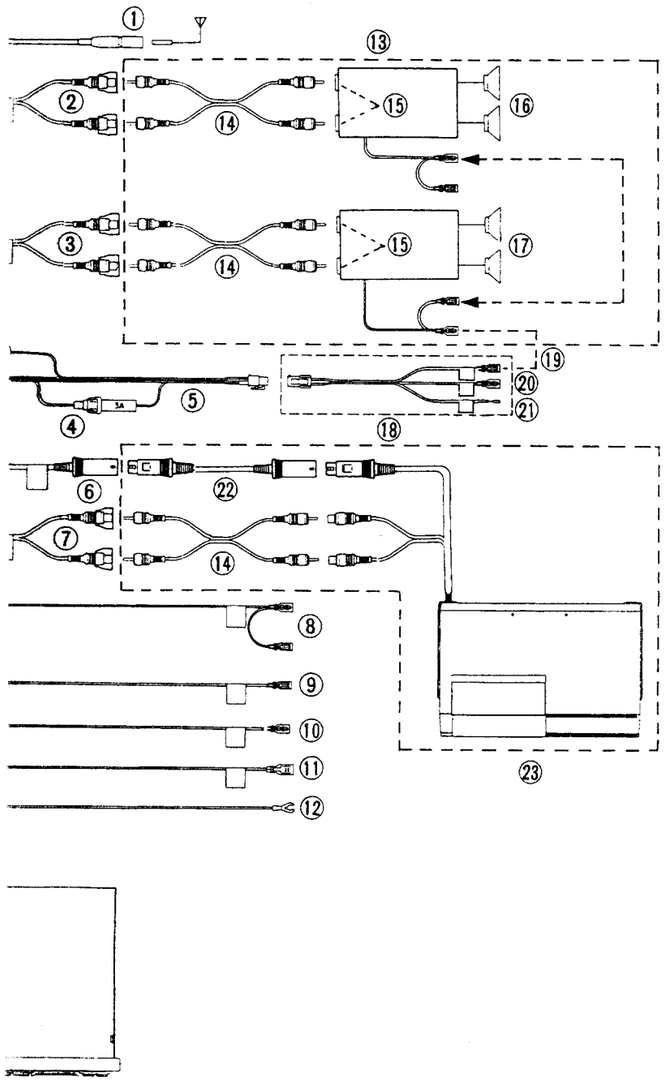
CONTROLS AND INDICATORS





CONNECTIONS



CONNECTIONS

This unit is designed for 12-volt DC negative ground operation. Check to be sure that your vehicle has this type of system before connecting the power cable.

① **Antenna Receptacle**
② **Front Output RCA Connectors (Labeled LINE OUT FRONT)**
RED is Right and WHITE is Left.
③ **Rear Output RCA Connectors (Labeled LINE OUT REAR)**
RED is Right and WHITE is Left.
④ **Fuse Holder (3A)**
⑤ **Power Supply Connector**
Connect to Power Wiring Harness.
⑥ **DIN Connector**
Connect this to 5952 CD changer only for control.
⑦ **Input RCA Connectors (Labeled LINE IN):**
RED is Right and WHITE is Left.

NOTE: The 7390M uses female RCA type connectors that are designed to connect to another unit (source unit, signal processor, or amplifier) having RCA connectors. You may need an adaptor to convert the other unit to this format. If so, please contact your authorized Alpine dealer for assistance.

⑧ **Dimmer Control Lead (WHITE/BLUE)**
This lead is for connection to a rheostat such as the dashboard light dimmer in your vehicle. Applying (+)12V to this lead causes the maximum dimming. Varying the voltage controls the brightness of the display. This allows you to dim the unit's display with the dashboard lights.
⑨ **Audio Interrupt In Lead (PINK/WHITE)**
Applying (+)12V to this lead mutes the audio output. This works well when connecting the 7390M with a Cellular Phone equipped with Audio Interface output. Removing (+)12V from this lead deactivates the muting circuit.
⑩ **Audio Interrupt Out Lead (PINK/WHITE)**
Connect to Audio Interrupt In Lead of a CD player, etc.
⑪ **Power Antenna Lead (BLUE)**
When loaded with a power antenna, connect to the +B terminal of the power antenna.
⑫ **Ground Lead (BLACK)**
Connect this lead to a good chassis ground on the vehicle. Make sure the connection is made to bare metal and is securely fastened using a sheet metal screw.
⑬ **Option**
⑭ **RCA Extension Cable**
⑮ **RCA Input of Amplifier**
⑯ **Front Speakers (Right/Left)**
⑰ **Rear Speakers (Right/Left)**
⑱ **Power Wiring Harness**
Connect the BLUE/WHITE, RED, and YELLOW leads.
⑲ **Remote Turn-On Lead (Labeled REMOTE ON): (BLUE/WHITE)**
Connect this lead to the remote turn-on lead of your amplifier or signal processor.
⑳ **Switched Power Lead (Labeled IGNITION): (RED)**
Connect this lead to an open terminal on the vehicle's fuse box or another unused power source which provides (+)12V only when the ignition is turned on or in the accessory position.

CAUTION: You must be very careful when connecting wires to the vehicle's electrical system. Be sure you do not interface leads that are being used for factory components in the vehicle (like an on-board computer). When making connections at the fuse box, make sure there is an appropriate value fuse on the circuit you plan to use. Failure to do so may result in damage to the unit and/or the vehicle.

㉑ **Battery Lead (YELLOW)**
Connect this lead to the positive (+) post of the vehicle's battery.
㉒ **Extension DIN Connector**
㉓ **5952 (Sold separately)**

PRECAUTIONS

- When replacing the fuse(s), the replacement must be of the same amperage as shown on the fuse holder. If the fuse(s) blows more than once, carefully check all electrical connections for shorted circuitry. Also have you vehicle's voltage regulator checked. Do not attempt to repair the unit yourself. Return it to your Alpine dealer or the nearest Alpine Service Station for servicing.
- In order to ensure proper performance, be sure the temperature in your vehicle is between the range of 14°F (—10°C) to 140°F (60°C) before turning your player on. Good air circulation is essential to prevent heat build-up in the unit (especially in hot weather).
- C-120 type cassette tapes are not recommended for use in automobile tape players.
- Prevent any foreign objects from entering the cassette opening as the precision mechanism and tape head may be damaged.
- To protect your cassette tapes, store them in a cool place away from dust, dirt, and strong magnetic sources such as electric motors, speakers and TV sets.
- Check and make sure any slack in the tape is taken up before inserting the tape into the unit. A loose tape could cause damage to the unit and the tape itself. Tighten the cassette by inserting a pencil or a similar instrument into the spindle hole and turn until all the slack has been taken up.

- **CAUTION:** In the event of road vibration or rapid acceleration or vehicle collision, this unit may become dislodged from its case unless the handle is fully down. This could result in personal injury to occupants of the vehicle or physical damage to the unit. Please see the illustrations below for further information on how to properly secure the handle.

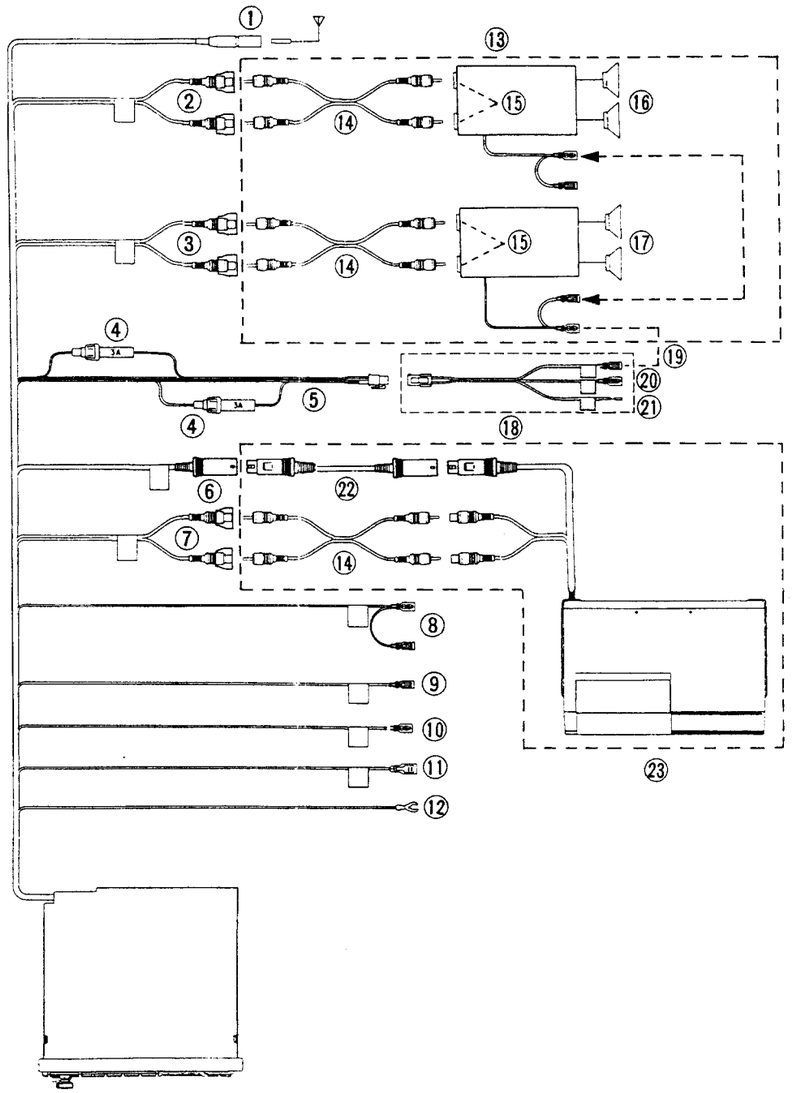
NOTE: This unit has a special volume control on the left side of the unit for adjusting the volume level for SDK reception and the alarm which will sound when there is no SK signal in the SDK mode. Set the volume control ㉙ to the minimum level position, and adjust the special volume control on the left side of the unit to your desired level with a screwdriver.

CONNECTIONS

Refer to Fig. 1 on page 4.

① **BASS Control**
② **TREBle Control**
③ **DX/REPEAT Switch**
④ **SDK Switch**
⑤ **TUNER/BAND Switch**
⑥ **TUNE/DISP Button**
⑦ **Slot for Cassette**
⑧ **M.S. · CD UP/FF Button (▶▶|)**
⑨ **Numeric Display**
⑩ **DISC Indicator**
⑪ **Band Indicator**
⑫ **Elapsed TIME Indicator**
⑬ **DX Indicator**
⑭ **SK Indicator**
⑮ **STereo Indicator**
⑯ **MTL Indicator**
⑰ **MUSIC Indicator**
⑱ **Reset Button**
⑲ **Sensor Window For Remote Control (Optional 4390 Wireless Remote Control)**
⑳ **Preset and Direct Disc Access No. 1/Dolby B Button and Indicator**
㉑ **Preset and Direct Disc Access No. 2/Dolby C Button and Indicator**
㉒ **Preset and Direct Disc Access No. 4/B. SKIP Button and Indicator**
㉓ **Preset and Direct Disc Access No. 6 Button and Indicator**
㉔ **Preset and Direct Disc Access No. 5/PROG Button and Indicator**
㉕ **Preset and Direct Disc Access No. 3/M.S. Button and Indicator**
㉖ **LOUD Indicator**
㉗ **Tape Direction Indicator**
㉘ **M.I.X. Indicator**
㉙ **SDK Indicator**
㉚ **ONE/ALL Repeat Indicator**
㉛ **PAUSE Indicator**
㉜ **A. MEMO Indicator**
㉝ **SEEK Indicator**
㉞ **D.A.P. Indicator**
㉟ **M.S. · CD DN/REW Button (|◀◀)**
㊱ **D.A.P./M.I.X./LOUD Button**
㊲ **TAPE ▶ / ⏸ (PLAY/PAUSE) Button**
㊳ **DISC ▶ / ⏸ (PLAY/PAUSE) Button**
㊴ **Power Switch (Turn)/EJECT Button (PUSH)/VOLume (Turn) and BALance (PULL and Turn) Control**
㊵ **FADER Control (FAD)**

CONNECTIONS



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⑳ **Switched Power Lead (Labeled IGNITION): (RED)**
Connect this lead to an open terminal on the vehicle's fuse box or another ur power source which provides (+)12V only when the ignition is turned on or ir accessory position.

CAUTION: You must be very careful when connecting wires to the vehicle's ele system. Be sure you do not interface leads that are being used for components in the vehicle (like an on-board computer). When maki connections at the fuse box, make sure there is an appropriate value the circuit you plan to use. Failure to do so may result in damage tc and/or the vehicle.

㉑ **Battery Lead (YELLOW)**
Connect this lead to the positive (+) post of the vehicle's battery.
㉒ **Extension DIN Connector**
㉓ **5952 (Sold separately)**

OPERATION

● BASIC OPERATION

Power Switch and Volume Control ㊴

Rotating the Power Switch ㊴ clockwise turns power ON and continuously increases the volume. Rotating the control counterclockwise will continuously decrease the volume, and turn the Power Off.

Note: Keep the volume control turned fully counterclockwise before your program starts. Adjust the volume by gradually turning the control clockwise once playback begins.
Do not turn the control clockwise abruptly as the excessive power could damage the speakers.

Balance Control ㊴

Pull on the Volume Control ㊴ and rotate to balance between left and right speakers.

Fader Control ㊵

Rotate the Fader Control ㊵ for your desired front to rear volume balance.

Separate Bass and Treble Controls (①, ②)

Slide these controls to the right to increase, and to the left to decrease the level of Bass or Treble.

Loudness

Press and hold the LOUD button ㉞ for more than two seconds to activate the loudness function. Press and hold the LOUD button for more than two seconds again to defeat this feature.

Mode Switching of the 7390M

1. Radio Mode
   Press the TUNER Switch ⑤ to put the unit into Radio mode. The Band indicator ⑪ (FM, MW or LW) will appear in the display.

2. Cassette Player Mode
   Press the TAPE button ㊲ to put the unit into the cassette player mode.

3. C.D. Changer Mode
   Press the DISC button ㊳ to put the unit into the CD mode. If the Alpine 5952 CD Changer has not been connected, "E E E E" will appear in the display ⑨.

● RADIO OPERATION

Turn the power on and set the unit to the Radio mode.

Band Selector Switch

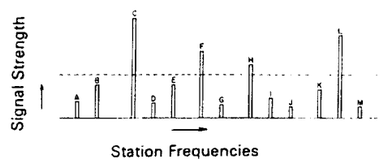
Press the BAND Switch ⑤ to select the desired tuning band. The Band Indicator ⑪ shows your selection.

Local/Distance (DX) Sensitivity Switching for FM, MW and LW

You can select the radio SEEK sensitivity (local or distance (DX)) by pressing the DX Switch ③.

In the distance mode, with DX indication ⑬, the radio tunes in both strong and weak stations (from A to M in the illustration).

In the Local mode, with no DX indication ⑬, the radio tunes in only strong stations (C, F, H and L in the illustration).



OPERATION

Automatic FM Stereo/Monaural Switching

During FM stereo reception, the "ST" indicator ⑮ lights up.

When the station signal becomes weak, the unit automatically switches to the monaural mode to reduce the noise and the "ST" indicator disappears. Should the signal become strong enough, the unit automatically changes back to the stereo mode.

Manual Tuning

1. Press the TUNE button ⑥ until the SEEK ㉝ and A. MEMO ㉜ indicators disappear in the display ⑨.
2. To select the tuning band, press the BAND Switch ⑤. The band indicator ⑪ shows your selection.
3. To tune to higher frequencies, press the M.S. · CD button on the top (UP) ⑧.
4. To tune to lower frequencies, press this same button on the bottom (DowN) ㉟.

Auto Seek Tuning

1. Press the TUNE button ⑥ until the SEEK indicator ㉝ appears in the display.
2. Select the tuning band with the BAND Switch ⑤.
3. Press the UP ▶▶| ⑧ or DowN |◀◀ ㉟ button. The unit automatically tunes to the next higher or lower frequency and locks on that station.

Manual Memory Preset

Follow the instructions below to program stations into preset memory.

1. Select the tuning band (FM1, FM2, MW, LW) ⑪ with the BAND switch ⑤.
2. Tune in your desired station by manual or Auto Seek tuning.
3. Press and hold any Preset Button (⑳ — ㉕) for more than two seconds. The tuned frequency in the Numeric Display ⑨ will begin to blink. Press that button a second time while the indication is blinking (within five seconds.)
4. Your selected station will be placed into that preset location and the indicator will light.
   Note: If a preset memory has already been programmed in that location, it will be cleared and the new station will replace in the preset memory.

Auto Memory Preset

1. Press the TUNE button ⑥ to light up the A.MEMO indicator ㉜.
2. Select the desired tuning band (FM1, FM2, MW or LW) ⑪ with the BAND Switch ⑤.
3. Press the UP ⑧ or DN ㉟ button. The tuner will automatically seek the six strongest stations in each band and memorize them in order of the signal strength. These stations are automatically placed in the preset memory with the strongest station in Preset No. 1 and the 6th strongest station in Preset No. 6. When seeking stations, the tuner first seeks in the local tuning mode. If less than 6 stations are memorized, the tuner seeks again in the distance (DX) mode.
4. After finishing Auto Memory Preset, the tuner goes to the station placed in preset memory No. 1. If no stations are memorized, it returns to the original station you were listening to before the auto memory preset procedure began.

Preset Tuning

After the preset stations have been memorized, you can tune in your desired station (within the band displayed) with one touch of a button.

1. Select the tuning band (FM1, FM2, MW or LW) ⑪ with the BAND Switch ⑤.
2. Press any one of the Preset buttons (⑳ — ㉕) and the indicator in that button will light.
3. The frequency of the station placed in the selected preset location will appear in the display.

D.A.P. (Direct Access Preset)

This feature allows the storage of FM, MW and LW presets on the same band. Press the D.A.P. button ㉞ to light up the D.A.P. indicator ㉞. To program stations into the D.A.P. band, follow steps 2 — 4 as described in the Manual Memory Preset section on Page 15.

Accessing the D.A.P. Presets

1. Press the D.A.P. button ㉞. The D.A.P. indicator ㉞ will illuminate in the display.
2. Press one of preset buttons (⑳— ㉕) and the indicator in that button will light.
3. The frequency of the station placed in the selected D.A.P. location will appear in the display.

OPERATION

Traffic Information Receiving

This model is equipped with traffic information receiving apparatus to b
Germany where the traffic information is broadcast in FM. The following
this unit to receive traffic information broadcasting.

1. Select FM position.
2. Depress the SDK switch ④ and tune to a station. If the station is a tr
   station, the SK indicator ⑭ will glow and show the reception of a broa
   traffic information station.
   NOTE: SK Indicator
   When SK signal is received irrespective of the SDK switch position, th
   will illuminate.
3. In the SDK mode, stations other than traffic information stations are r
   out. Therefore, it is easy to select a traffic information station.
4. As the signal of the tuned traffic information station becomes weak, t
   will extinguish. Then after the lapse of 25 seconds, a rhythmical aları
   urge retuning to another stronger station. If the reception of further t
   is required, tune in the desired traffic information station. When rece
   will stop and the SK indicator illuminates. Since the alarm will continu
   from any other traffic stations can be received, release SDK switch fo
   normal broadcasting.
5. When the unit is playing a tape or a CD with the SDK switch pushed
   traffic information station, the tape or CD play is interrupted and char
   if the pre-tuned station begins a traffic information message. When t
   over, the unit reverts to tape or CD play automatically.
6. Even if the VOLUME control is set to the minimum position, the volur
   information will be automatically adjusted to proper level. After the n
   sound volume returns to the previously adjusted level.
7. If traffic information reception is no longer necessary, release SDK sv
   radio reception.

NOTE: When the SDK switch is pressed and there is no SK signal, ALA
after the lapse of 25 seconds. Press the SDK switch again to s

● TAPE PLAYER OPERATION

Turn the unit on and press the TAPE ▶ / ❚❚ button ㊲ to access the t

Dolby* B/C Noise Reduction

Before playing a cassette tape, check to see if it is encoded with Dolb
reduction.

Press the Dolby B or C button (⑳ or ㉑) when playing a Dolby encoded
B or Dolby C indicator in the button will illuminate to show you which noi
system you have activated.

Cassette Loading and Reloading

1. Insert a prerecorded cassette tape into the tape slot ⑦ with the open
   your right.
2. If the cassette tape is not completely loaded into the deck, lightly pre
   into the slot.

Eject

Press the EJECT button ㊴ to eject the cassette tape from the tape me

Playback

1. Insert a prerecorded cassette tape with open side facing right. The pl
   immediately.
2. If a cassette tape is already loaded in the unit, press the Play (▶ / ❚❚
   start playback.
3. To stop tape play, press the EJECT button ㊴ or turn the power off w
   switch ㊴.

OPERATION

FM Stereo/Monaural Switching
M stereo reception, the "ST" indicator ⑲ lights up.
e station signal becomes weak, the unit automatically switches to the monaural
duce the noise and the "ST" indicator disappears. Should the signal become
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play ⑨.
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lection.
to higher frequencies, press the M.S. · CD button on the top (UP) ⑧.
to lower frequencies, press this same button on the bottom (DowN) ㉟.

Tuning
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OPERATION

Traffic Information Receiving
This model is equipped with traffic information receiving apparatus to be used in West Germany where the traffic information is broadcast in FM. The following is how to use this unit to receive traffic information broadcasting.

1. Select FM position.
2. Depress the SDK switch ④ and tune to a station. If the station is a traffic information station, the SK indicator ⑭ will glow and show the reception of a broadcast from a traffic information station.
   NOTE: SK Indicator
   When SK signal is received irrespective of the SDK switch position, the SK indicator will illuminate.
3. In the SDK mode, stations other than traffic information stations are muted and cut out. Therefore, it is easy to select a traffic information station.
4. As the signal of the tuned traffic information station becomes weak, the SK indicator will extinguish. Then after the lapse of 25 seconds, a rhythmical alarm will sound to urge retuning to another stronger station. If the reception of further traffic information is required, tune in the desired traffic information station. When received, the alarm will stop and the SK indicator illuminates. Since the alarm will continue if no signals from any other traffic stations can be received, release SDK switch for reception of normal broadcasting.
5. When the unit is playing a tape or a CD with the SDK switch pushed in and tuned to a traffic information station, the tape or CD play is interrupted and changed to FM radio if the pre-tuned station begins a traffic information message. When the message is over, the unit reverts to tape or CD play automatically.
6. Even if the VOLUME control is set to the minimum position, the volume of the traffic information will be automatically adjusted to proper level. After the message, the sound volume returns to the previously adjusted level.
7. If traffic information reception is no longer necessary, release SDK switch for normal radio reception.

NOTE: When the SDK switch is pressed and there is nc SK signal, ALARM will sound after the lapse of 25 seconds. Press the SDK switch again to stop it.

● TAPE PLAYER OPERATION

Turn the unit on and press the TAPE ▶ / ❚❚ button ㊲ to access the tape mode.

Dolby* B/C Noise Reduction
Before playing a cassette tape, check to see if it is encoded with Dolby B or C noise reduction.

Press the Dolby B or C button (⑳ or ㉑) when playing a Dolby encoded tape. The Dolby B or Dolby C indicator in the button will illuminate to show you which noise reduction system you have activated.

Cassette Loading and Reloading
1. Insert a prerecorded cassette tape into the tape slot ⑦ with the open side facing to your right.
2. If the cassette tape is not completely loaded into the deck, lightly press the cassette into the slot.

Eject
Press the EJECT button ㊴ to eject the cassette tape from the tape mechanism.

Playback
1. Insert a prerecorded cassette tape with open side facing right. The playback begins immediately.
2. If a cassette tape is already loaded in the unit, press the Play (▶ / ❚❚) button ㊲ to start playback.
3. To stop tape play, press the EJECT button ㊴ or turn the power off with the POWER switch ㊴.

OPERATION

Pause
To temporarily stop playback, press the Pause button ㊲. To resume playback, press the same button again.

Metal (MTL) Indicator
Metal or CrO_2 cassette tapes having an open detection hole will automatically be detected, in which case the MTL indicator ⑯ in the display comes on and the playback equalization is automatically set to 70μsec.

True Fast Forward and Rewind
1. Press the FF button ⑧ to advance the tape quickly. Press the REW button ㉟ to rapidly run the tape backward. The deck will perform these functions correctly regardless of the tape play direction.
2. To disengage the FF or REW functions, press the TAPE (▶ / ❚❚) button ㊲.

Music Sensor
1. Press the Music Sensor (M.S.) button ㉕ and its indicator will light up.
2. Push the FF button ⑧ to advance to the beginning of the next musical track. Press the REW button ㉟ to go back to the beginning of the current musical track.
3. The tape deck searches forward (or back) until it senses a blank section on the tape and begins playback at that point.

NOTE: The music sensor cannot detect blank sections of less than three seconds.

Auto Reverse
When the tape is played or fast-forwarded to the end, the tape transport automatically reverses the tape direction and playback begins.

Manual Reverse
To manually change playback direction (switch between side A and side B), press the PROG button ㉔.

Repeat
1. Insert the cassette tape and begin playback.
2. When you find a selection you would like to repeat, press the REPEAT switch ③ until the "ONE" indicator ㉚appears in the display. This selection will be continuously repeated until the REPEAT function is disengaged.
3. To cancel the repeat function, press the REPEAT switch ③ again. The "ONE" indicator will disappear.

Blank Skip
1. Press the B. SKIP button ㉒ during playback to skip over any blank sections of tape lasting 15 seconds or more.
2. To cancel the Blank Skip function, press the B. SKIP button ㉒ again.

Head Cleaning
When playback sound quality begins to deteriorate, it is time to clean the tape head. Insert a special head cleaning cassette into the tape deck and allow it to run for approximately 1 minute to remove any foreign matter. There are special cleaning cassettes that also clean the capstans and pinch rollers. Please contact your authorized Alpine dealer for information about these cleaning devices.

OPERATION

● **CD OPERATION**

The following instructions apply only to systems that incorporate the Alpine 5952 CD changer with the 7390M.

Turn the unit on and access the CD mode by pressing the DISC Play button ㊳.

Initial System Turn-On

When operating the system for the first time after installation or after the vehicle's battery has been disconnected and reconnected, press the Reset button ⑱ with a ball-point pen or other pointed object.

CD Display Switching

In the CD mode, the display will show the Disc and Track Number (Fig. A) or the Elapsed Time (Fig. B). Press the DISP button ⑥ to select between the Disc/Track number and the Elapsed Time Indicators.

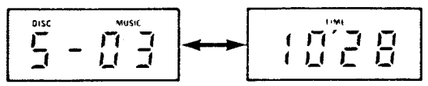


Fig. A

Fig. B

Normal Play (Repeat All)

1. Press the DISC (▶ / ❚❚) button ㊳.
2. The Display ⑨ will show " 0-00 " for a second, then " 1-01 " will be displayed and the first track on the first disc will begin playback.
3. After the last track on the last disc is played back, the pickup will return to the beginning of the first track of the first disc and begin playback from that point.

Pause

While the disc is playing, press the DISC (▶ / ❚❚) button ㊳ to temporarily stop playback. To resume playback, press the DISC button ㊳ again.

Music Sensor (Skip)

With this feature, you can get to the beginning of the music track of your choice simply and quickly. It is functional in the play or pause mode.

The display ⑨ shows the pickup location with the Track Number.

To advance to the next track on the disc, press the M.S. · CD UP button ⑧.

1. Playback stops, the pickup moves up to the beginning of the next track. The display ⑨ shows the number of the next track.
2. Playback begins immediately.
3. If you wish to select a track further ahead on the disc, continue pressing the M.S. · CD UP button ⑧ until you reach the track of your choice.

OPERATION

To replay the track that is currently playing, press the M.S. · CD DN button ㉟.

1. Playback stops, the pickup moves back to the beginning of the current track. The track number display will remain the same.
2. Playback begins immediately from the beginning of the track.
3. If you wish to select a track further behind on the disc, continue pressing the M.S. · CD DN button ㉟ until you reach the track of your choice.

Direct Disc Access

1. Press one of the Direct Disc Access buttons (⑳ — ㉕) to select from discs 1 — 6. The disc and track numbers will appear in the display.
2. Press the M.S. · CD UP ⑧ or DN ㉟ button for musical track selection.

Fast Forward/Fast Reverse

The Fast Forward/Fast Reverse feature works in both play and pause modes.

1. To rapidly move the pickup forward, press the M.S. · CD UP (▶▶|) button ⑧ and hold it down for more than one second.
2. To rapidly move the pickup backward, press the M.S. · CD DN (|◀◀) button ㉟ and hold it down for more than one second.
3. Continue holding the UP (▶▶|) ⑧ or DN (|◀◀) ㉟ buttons until you reach the point where you want to resume playback.
4. When the pickup reaches the end of the disc, the unit will go into the Pause mode.

REPEAT (One/All)

This feature allows you to continuously repeat a single track or one entire disc.

To Repeat a Single Track

1. Locate the music track of your choice using the M.S. · CD UP ⑧ or DN ㉟ buttons.
2. Press the REPEAT Switch ③.
   The repeat indicator "ONE" ㉚ will illuminate.
   The music track will be played back repeatedly.
3. To stop repeat play, press the Repeat switch twice. The indicator switches from "ONE" to "ALL" and the illumination will be off.

To Repeat an Entire Disc

1. While playing a disc, press the REPEAT switch ③ until the "ALL" indicator ㉚ is displayed.
2. The disc will be played back repeatedly.
3. To stop repeat play, press the Repeat switch once. The indicator illumination will be off.

M.I.X. (Random Play)

Press the M.I.X. button ㊱ while the unit is in the play or pause modes. Musical tracks will be played back in a random sequence generated by the micro processor. After all the tracks on the disc have been played back once, the player will begin a new random sequence.

Disassembly Instructions

1. **Removal of Nosepiece**
   (1) After removal of the bracket handle and top cover, remove two control knobs (VOLUME, FADER) as shown in Figure 1.
   (2) Remove five hooks marked "○" as shown in Figures 1 and 2.

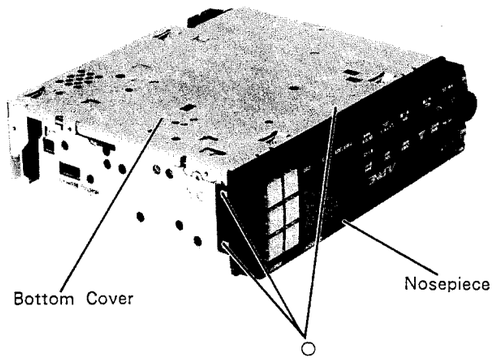


Figure 2

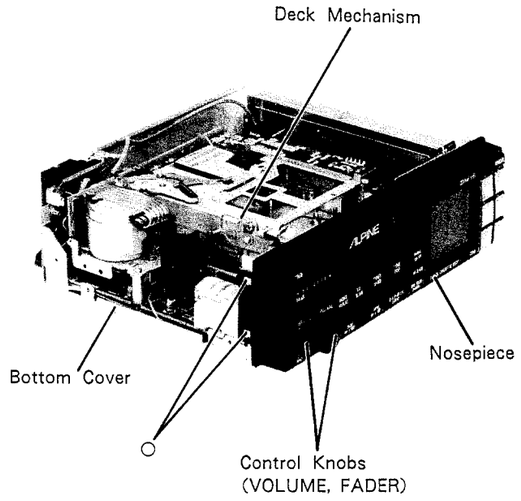


Figure 1

2. **Removal of Deck Mechanism**
   (1) After removal of the nosepiece, remove four screws marked "×" as shown in Figure 3.
   (2) Disconnect a connector from the Main P. C. Board.

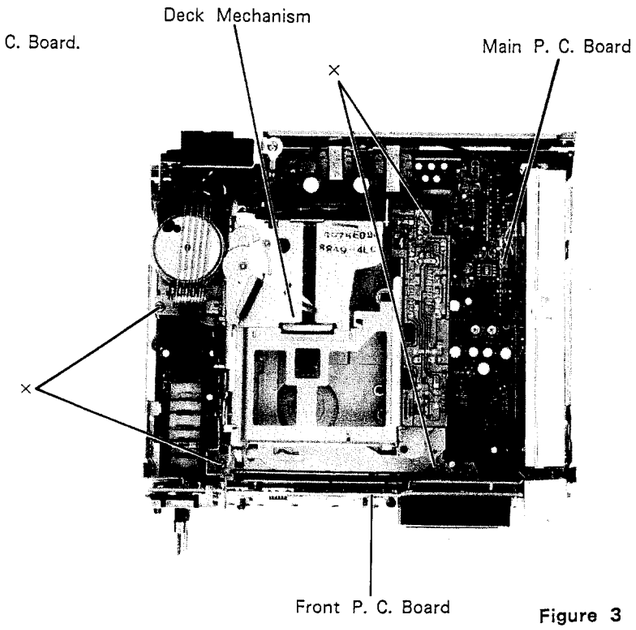


Figure 3

3. **Removal of Bottom Cover**
   (1) After removal of the Deck Mechanism and Front P. C. Board, disconnect all connectors from the QRB connector.
   (2) Remove the solder (A) as shown in Figure 4.
   (3) Remove four screws marked "△" as shown in Figure 4.
   (4) Bottom cover with the rear chassis and QRB connector can be removed completely.

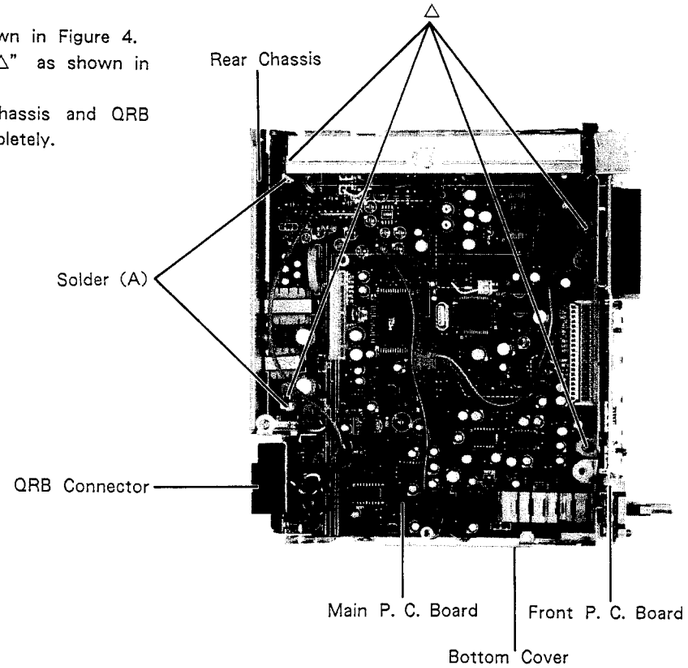


Figure 4

4. **Removal of Main P. C. Board**
   (1) After removal of the bottom chassis, remove the nut & washer as shown in Figure 5.
   (2) Remove the solder (B) as shown in Figure 5.
   (3) Remove four hooks marked "□" as shown in Figure 5.
   (4) Disconnect a connector from the remote-control (E1).

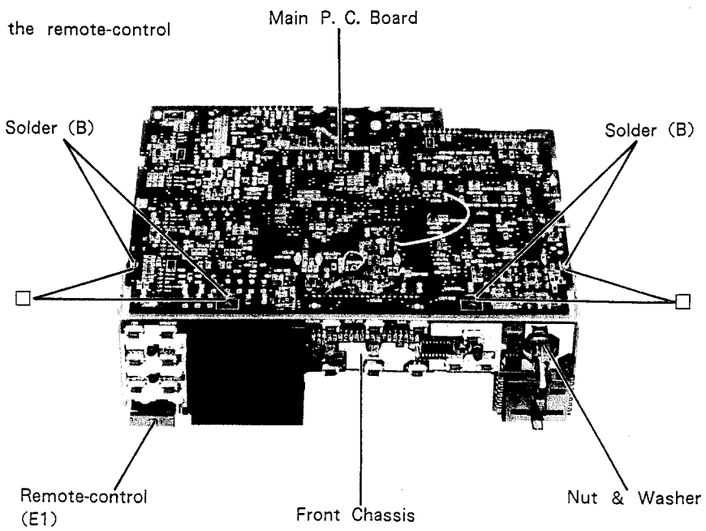


Figure 5

Adjustment Procedures

1. **Tape Player**

(1) Connection

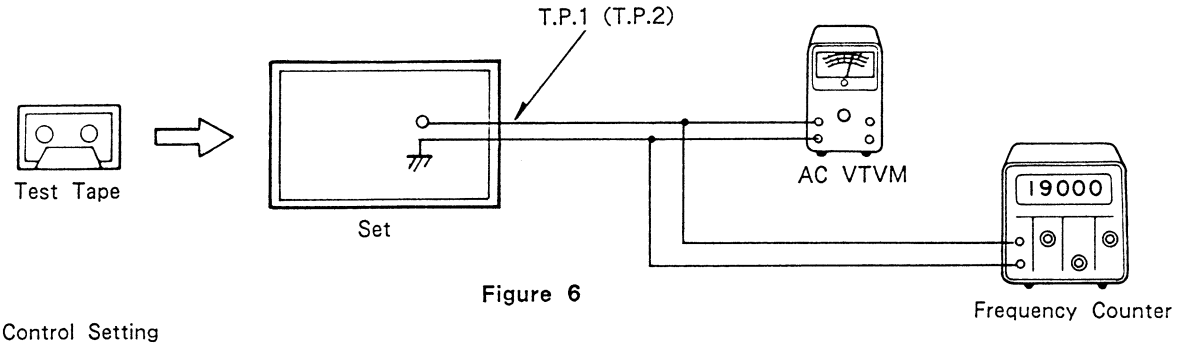


Figure 6

(2) Control Setting

Power Switch ..... ON
Fader Control ..... Front Position
Balance Control ..... Mechanical Center
Treble/Bass Control ..... Mechanical Center
Other Switch ..... OFF

(3) Adjustment Procedures

Step	Description	Test Tape	Connection	Test Point	Adjustment Point	Adjustment
1	Head Azimuth Adjustment	MTT-114NB (14kHz)	Figure 6	T.P.1 (L) T.P.2 (R)	Head Azimuth Adjustment Screw (Figure 7)	Adjust for Max. and same level output at Normal and Reverse Positions.
2	Dolby Level Adjustment	MTT-150 (400Hz)	Figure 6	T.P.1 (L) T.P.2 (R)	VR101 (L) VR102 (R)	T.P.1 (L), T.P.2 (R) output for 245mV±1dB.
3	Tape Speed Adjustment	MTT-111 (3kHz)	Figure 6	T.P.1 (L) or T.P.2 (R)	Tape Speed Adjustment (Figure 8)	T.P.1 (T.P.2) for 2,970~3,090Hz.

Adjustment Locations

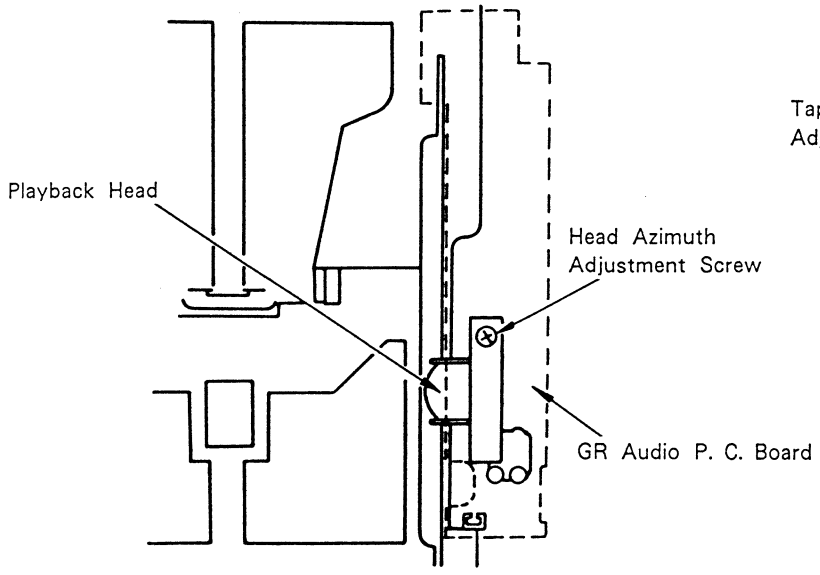


Figure 7

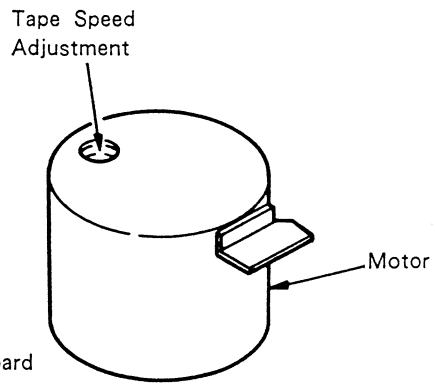
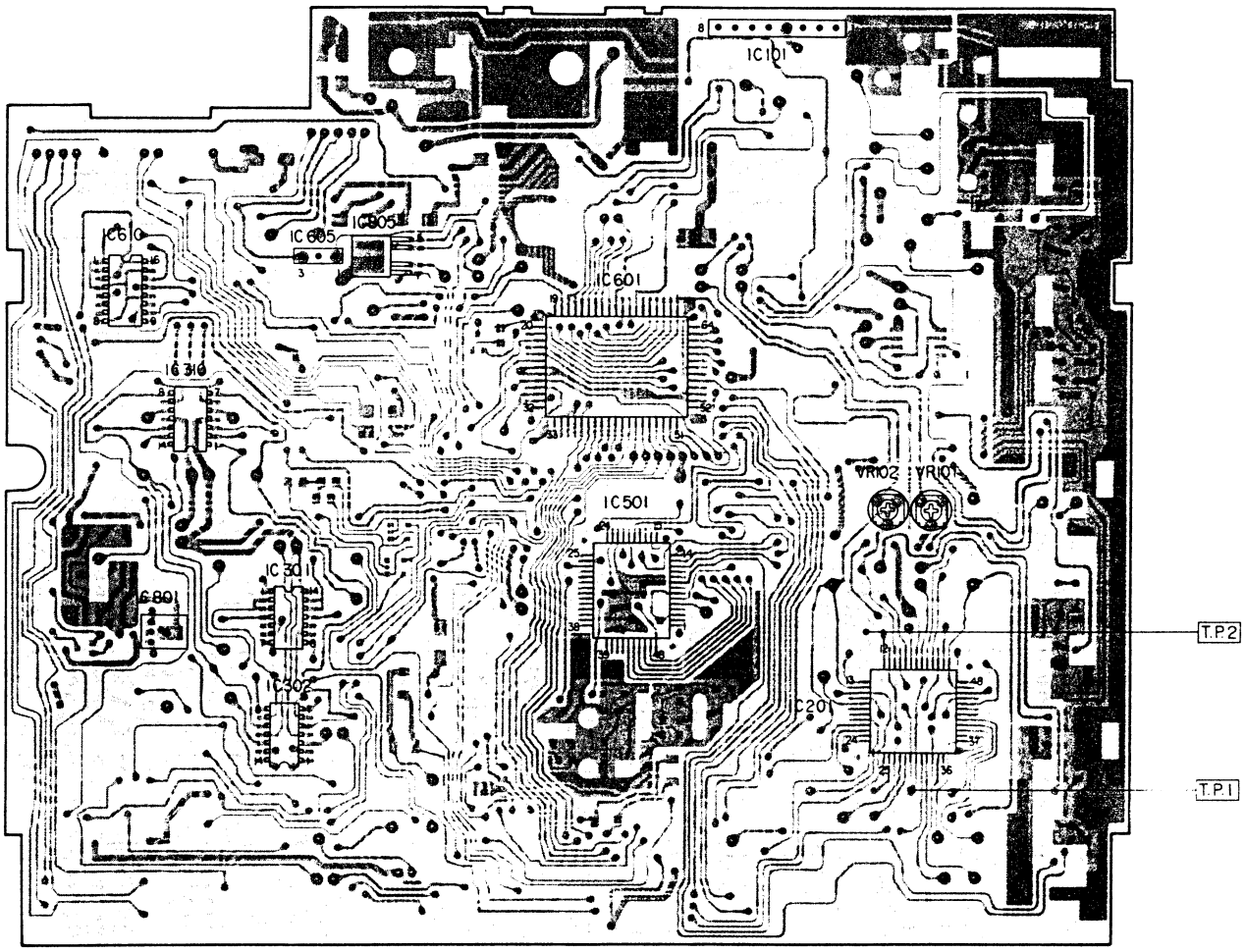


Figure 8



Main P. C. Board

Description of IC Terminals

● **CXA1098Q** : IC201

No.	Symbol	I/O	Terminal description
1	PB FB	I	Playback Feedback IN.
2	OFF/B/C		Dolby NR off/B-type/C-type switching.
3	PB IN	I	Playback IN.
4	CAL IN	I	Calibration IN.
5	REC IN	I	Recording IN.
6	VEE		Under primary power supply operation : Ground. Under Secondary power supply operation : Negative power supply.
7	VCC		Positive power supply.
8	REC IN	I	Recording IN.
9	I REF	I	Reference current IN.
10	PB IN	I	Playback IN.
11	CAL/REC/PB		Calibration/Recording/Playback switching.
12	PB FB	I	Playback Feedback IN.
13	REC FB	I	Recording Feedback IN.
14	GND		Under primary power supply operation : VCC/2. Under secondary power supply operation : Ground.
15	LINE OUT	O	Line out (Recoded).
16	SSK	O	Spectral skewing switch.
17	VF IN	I	Encoder IN.
18	NC		No connection.
19	NC		No connection.
20	HPF H	O	HLS High-pass-filter.
21	TCH 2	O	HLS detector time constant 2.
22	TCH 1	O	HLS detector time constant 1.
23	WT H	O	HLS weighting.
24	TCL 2	O	LLS detector time constant 2.
25	NC		No connection.
26	TCL 1	O	LLS detector time constant 1.
27	WT L	O	LLS weighting.
28	HPF L	O	LLS High-pass filter.
29	ANT S	O	Anti-saturation.
30	REC OUT	O	Recording OUT (Encoded).
31	REC OUT	O	Recording OUT (Encoded).
32	ANT S	O	Anti-saturation.
33	HPF L	O	LLS High-pass filter.
34	WT L	O	LLS weighting.
35	TCL 1	O	LLS detector time constant 1.
36	NC		No connection.
37	TCL 2	O	LLS detector time constant 2.
38	WT H	O	HLS weighting.
39	TCH 1	O	HLS detector time constant 1.
40	TCH 2	O	HLS detector time constant 2.
41	HPF H	O	HLS High-pass filter.

No.	Symbol	I/O	Terminal description
42	NC		No connection.
43	NC		No connection.
44	VF IN	I	Encoder IN.
45	SSK	O	Spectral skewing.
46	LINE OUT	O	Line OUT (Recoded).
47	GND		Under primary power supply operation : VCC/2. Under secondary power supply operation : Ground.
48	REC FB	I	Recording Feedback IN.

● **LC7582** : IC410

No.	Symbol	I/O	Terminal description
1 ~ 23	S1~S23	O	Segment OUT.
24	NC		No connection.
25 ~ 44	S24~S43	O	Segment OUT.
45	S44 (DSP2)	I/O	Segment OUT/DSP IN.
46	S45 (AD2)	I/O	Segment OUT/AD IN.
47	S46 (DSP1)	I/O	Segment OUT/DSP IN.
48	S47 (AD1)	I/O	Segment OUT/AD IN.
49	S48 (DSPOUT)	O	Segment OUT/DSP OUT.
50	S49 (AD01)	O	Segment OUT/AD OUT.
51	S50 (AD02)	O	
52	S51 (AD03)	O	
53	S52 (AD04)	O	
54	S53 (AD05)	O	
55	OSC	I	Oscillator.
56	VDD	I	Power supply.
57	INH	I	Display eighting off IN. (Effective to output driver. So serial data transfer is possible while eighting is off.)
58	VLCD	I	LCD bias voltage setting up.
59	VSS		Power supply.
60	CE	I	Serial data transfer IN.
61	CLK	I	Serial data transfer IN.
62	DATA	I	Serial data transfer IN.
63	COM2	O	Common OUT (COM1 is used when 1/1 duty).
64	COM1	O	Common OUT (COM1 is used when 1/1 duty).

● **94468F04** : IC501

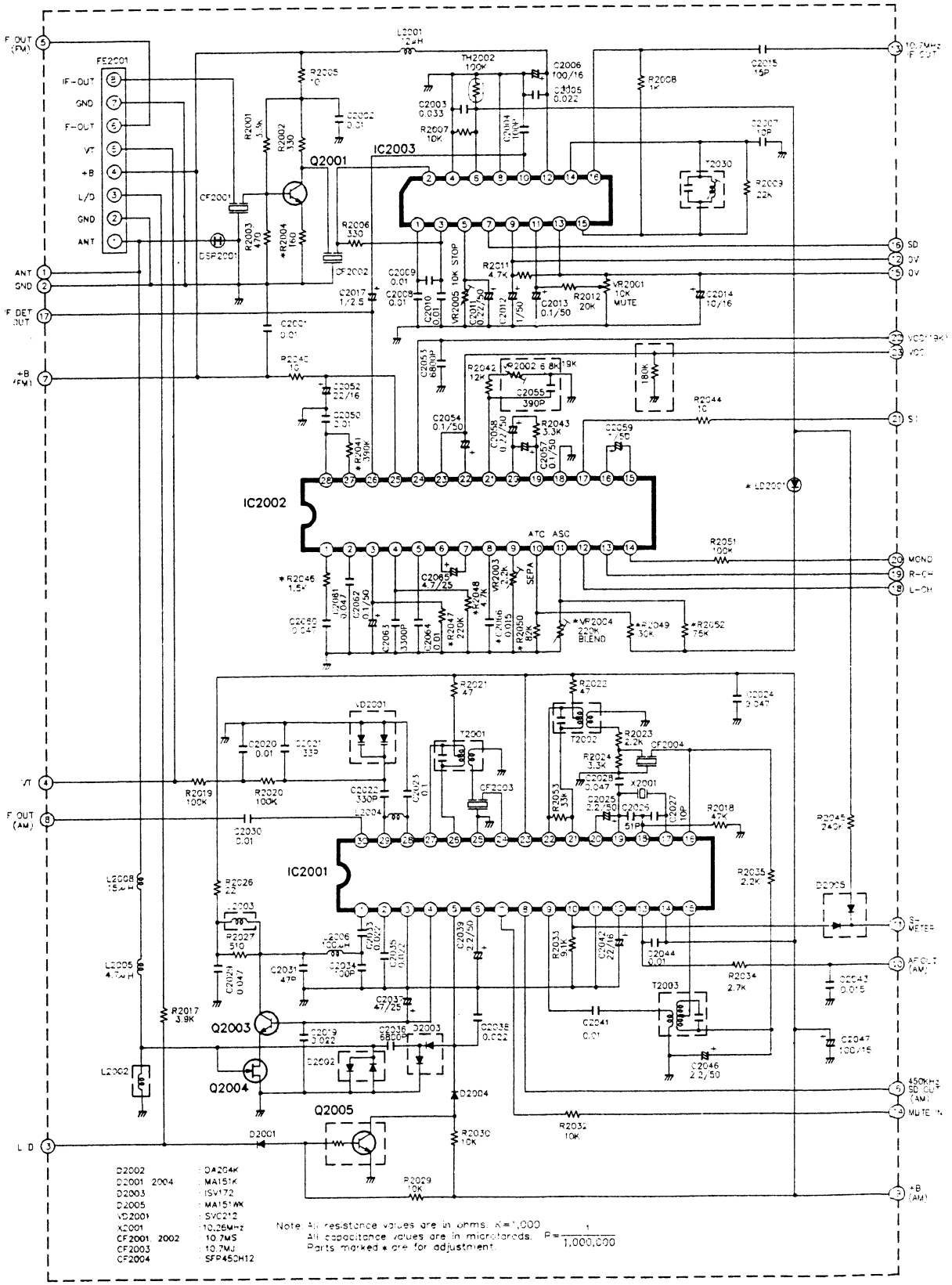
No.	Symbol	I/O	Terminal description
1	EO1	O	PLL error output terminal.
2	NC		
3	VDD1		Device power supply terminal.
4	NC		
5	VCOH	I	Input terminal for local oscillation output (VCO output) from 10 to 200MHz.
6	CE	I	Device selector signal input terminal.
7	VDD2		Device power supply terminal.
8	NC		
9	MONO/ST	O	Forced monaural selector output terminal.
10	NC		
11	NC		
12	MW/LW IF	I	MW/LW IF signal input terminal.
13	FM IF	I	FM IF signal input terminal.
14	SI (CMD)	I	Command data input terminal.
15	SCK	O	Sychronizing clock output terminal for status signal reception.
16	STS	O	Status signal output terminal.
17	STRT	O	Communication start signal output terminal.
18	MUTE	O	Mute signal output terminal.
19	LD/DX	O	Local mode selector output terminal.
20	XO	O	Crystal oscillator connection terminal.
21	XI	I	
22	GND		Ground terminal for device.
23	NC		
24	NC		
25	NC		FM/MW mode selector output terminal.
26	B2	O	
27	NC		
28	NC		
29	NC		
30	NC		
31	NC		
32 ~ 41	NC		No connection terminal.
42	GND		Ground terminal for device.
43	DK	I	DK signal input terminal (MO).
44	SK	I	SK signal input terminal (MO).
45	ST	I	ST signal input terminal.
46	SD	I	Station detector input terminal.
47	SM	I	Input level detector input terminal.
48	INT	I	With/without clock selector terminal.

● **15590W07, 15522W04** : IC601

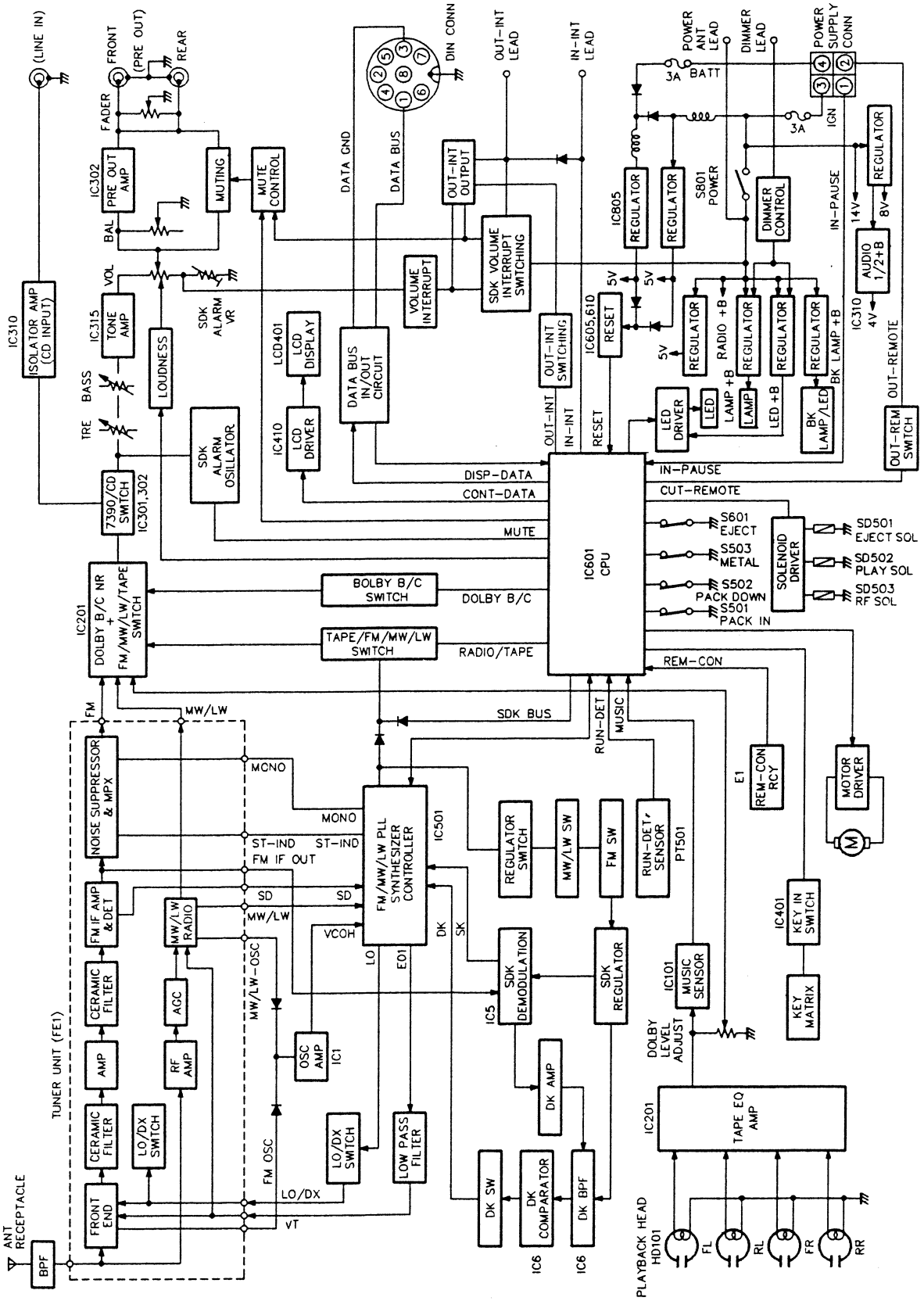
No.	Symbol	I/O	Terminal description
1	RUN-DET	I	Take-up reel detector input terminal for GR mechanism.
2	PACK-DWN	I	Pack Guide Position detector, input terminal for GR mechanism.
3	PLAY-SOL	O	Head base forward/back-ward selector output terminal for GR mechanism.
4	RF-SOL	O	Play/fast-forward (rewind) selector output terminal for GR Mechanism.
5	EJECT-SOL	O	Eject solenoid actuating output for GR mechanism.
6	MOTOR-CT	O	Motor running direction selector output terminal for GR mechanism.
7	RESET	I	Reset signal input terminal.
8 9	X1 X2		Crystal/Ceramic connection terminal for system clock oscillation, in case of external clock, input to X1 and input opposite phase to X2.
10	LEVEL-OF	O	Music sensor gain selector output terminal.
11	MOTOR-FAST	O	Motor rotational number selector output terminal for GR mechanism.
12	O-MOTOR	O	Motor rotation/stop selector output terminal for GR mechanism.
13	F/R	O	Audio signal FWD/REV selector output terminal for GR mechanism.
14	PACK-IN	I	Pack insertion detector input terminal for GR mechanism.
15	METAL	I	Metal tape detector input terminal.
16 17	Music	I	Tape non-recorded portion detector input terminal.
18	LED-ON	O	Preset indicator LED lighting selector terminal.
19	LOUD	O	Loudness selection output terminal.
20	DTS-CE	O	DTS chip enable signal output terminal.
21	SDK-BZ	O	SDK buzzer signal output terminal.
22	CHANGER	O	5952/7390 audio signal selector output terminal.
23	DOL-C	O	Dolby-C selector output terminal.
24	DOL-B	O	Dolby-B selector output terminal.
25	KEY-P/S	O	Key path serial data selector output terminal.
26 27	VSS		Ground (GND) potential terminal.
28	ACC	I	Accessory power detector input terminal.
29	DISPLY-DT	I	5952 display data input terminal.
30	REMO-CON	I	Remote control data input terminal.
31 32	BAND2 BAND1	I	Destination selector input terminal.
33	SDK	I	With/without SDK selector input terminal.
34	AUTO-ME	I	With/without auto memory selector input teminal. (But for this model, connect to GND)
35	AUTO-ME	I	With/without auto memory selector input teminal. (But for this model, connect to GND)
36	AUTO-ME	I	With/without auto memory selector input teminal. (But for this model, connect to GND)
37	VOL-PUSHKEY	I	Eject key input terminal.
38	KEY-IN	I	Key data input terminal.
39	MUTE	I	DTS mute signal input terminal.
40	STRT	I	DTS communication start signal input teminal.
41	STS	I	DTS status signal input terminal.
42	CMD	O	DTS command data output terminal.
43	SCK	I	DTS synchronous clock signal input terminal.
44	BATT	I	Battery power detector input terminal.

No.	Symbol	I/O	Terminal description
45	DATA	O	Display data signal output terminal.
46	CLOCK	O	Synchronous clock signal output terminal for display key input.
47	LCD-CE	O	LCD display chip enable signal output terminal.
48	LED-CE	O	LED display chip enable signal output terminal.
49	INH	O	Display lighting on/off selector output terminal.
50	SDK-BZ	O	SDK buzzer signal output terminal.
51	RADIO/TAPE	O	Radio/tape mode selector output terminal.
52	CONT-DATA	O	5952 control data output terminal.
53 54 55	NC		Not used. Connect to GND.
56	POWER	I	Power switch detector input terminal.
57 58	VDD		Device power supply terminal.
59	MUTE	O	Audio mute signal output terminal.
60	OUT-REMOTE	O	Reciprocal reset remote signal output terminal.
61	OUT-INT	O	Reciprocal reset interrupt signal output terminal.
62	IN-INT	I	Reciprocal reset interrupt signal input terminal.
63	IN-PAUSE	I	Audio mute signal input terminal.
64	IN-REMOTE	I	Reciprocal reset remote signal input terminal. (For this model, connect to GND.)

Tuner Schematic Diagram



Block Diagram

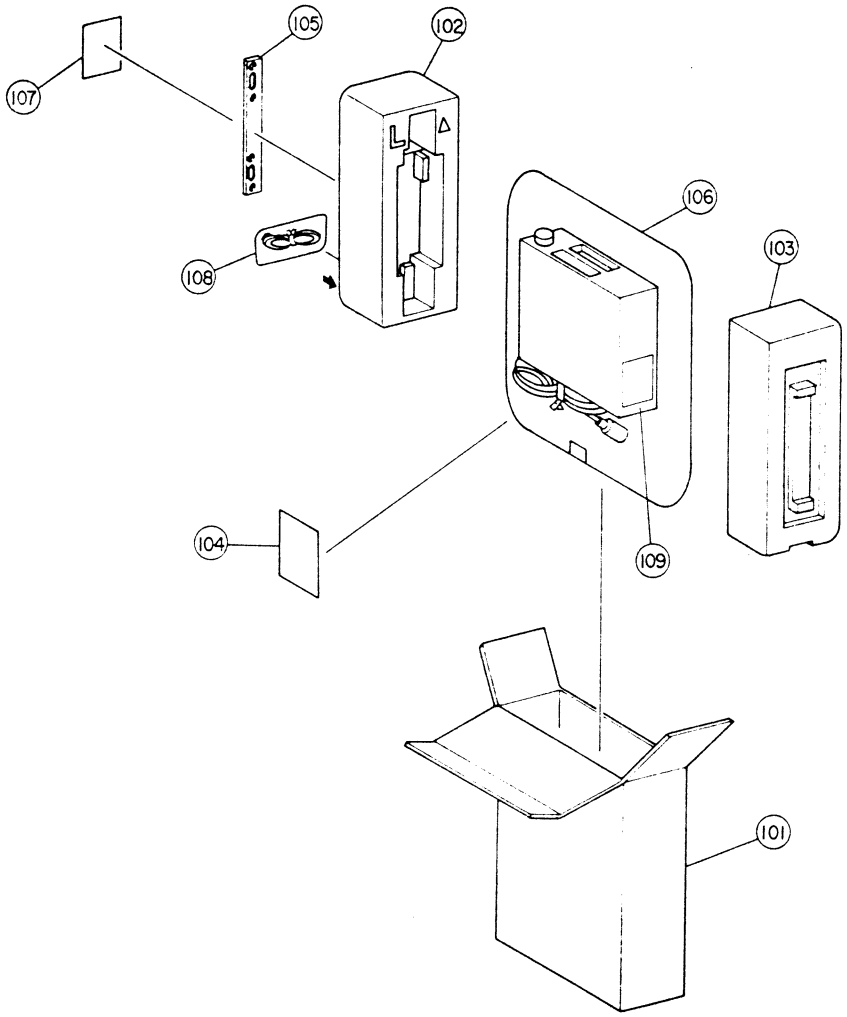


Packing Assembly Parts List

Symbol No.	Part No.	Description		
101	56S12717W06	Carton, Packing (Individual)		
102	56D82187F01	Tray, Packing (L)		
103	56D82187F02	Tray, Packing (R)		
104	68P10790W75	Owner's Manual		
105	07B64552F01	Bracket, Strap Receiver		
106	56B40990T36	Sack, Polyethylene		
107	01V21100W05	Assy., Kit		
107-1	02B47353F01	Nut, Hex (M5)		
107-2	03S40012G66	Screw, Tapping (M5 × 20)		
107-3	03B44963F03	Bolt, Hex W/ Washer (M5 × 10)		
107-4	03A40155F05	Bolt, Hex (M5 × 14)		
107-5	03A40155F06	Bolt, Hex (M5 × 20)		
107-6	03A84814F04	Screw, Bind (M2.6 × 18)		

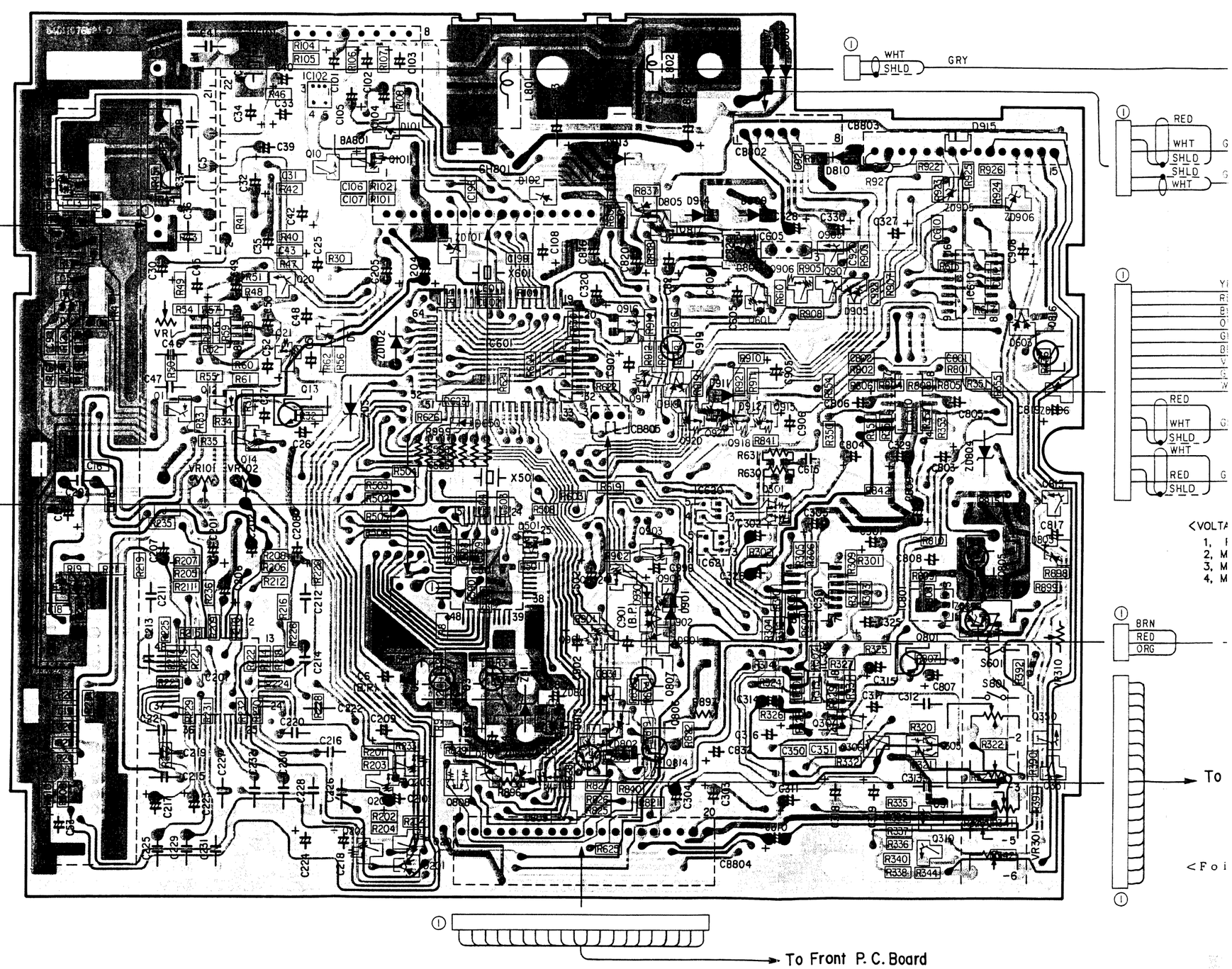
Symbol No.	Part No.	Description		
107-7	43A58272F04	Spacer		
107-8	45A41684U01	Arm, Adapter		
108	01T96095F01	Assy., Connector (4P)		
109	01V16700W29	Assy., Mother Case		
109-1	15D94518F01	Mother, Case		
109-2	01T15758W02	Assy., QRB Connector		
109-3	03S44205G61	Screw, Pan (M2.6 × 10)		
109-4	03S44205G07	Screw, Pan (M2.6 × 5)		
109-5	03S71677F03	Screw, Pan (M2.6 × 10)		

Packing Method View



Parts Layout on P.C. Boards and Wiring Diagram (1/2)

Main P.C. Board



	B	C	E
Q915	0.55V	3.13V	0V
Q918	0V	13V	0V
Q921	13V	0V	13.7V
Q350	3.1V	0V	0V
Q351	3.1V	0V	0V

	B	C	E
Q4	•1	•2	0V/0V/0V
Q10	8.5V	13.7V	7.9V
Q20	1.53V	2.8V	0.95V
Q21	2.8V	0V	0V

FM / MW / LW
•1 0.77V/0.78V/3.64V
•2 0.6V/0.3V/ 0V

	B		C			E		
Q201	OFF	B	C	OFF	B	C	OFF	B	C
	5V	5V	0V	0V	3.6V	8.1V	0V	3.6V	0V
Q203	OFF	B	C	OFF	B	C			
	5V	0V	5V	0V	3.6V	0V		0V	
Q202	FM	AM	TP	FM	AM	TP	FM	AM	TP
	4.2V	2.7V	0V	4.4V	0V	8.3V	2.9V	0V	0V
Q204	FM	AM	TP	FM	AM	TP			
	0V	4.7V	0V	2.9V	0V	0V		0V	

	1	2	3	4	5
Q301	0V	4.7V	0V	0V	4.7V
Q305	0V	0V	•3	0V	2.2V/0V
Q808	0V	7.5V	0V	0V	7.5V

•3 LOUD OFF/ON
2.2V/0V

	B	C	E	MODE
Q1	0V/4.75V	7V/0V	0V	DX SEEK/LOCAL SEEK
Q2	0.64V	3.78V	0.1V	
Q3	1.1V	9.3V	0.6V	
Q5	4.8V/0V	0V/5.5V	0V	MUTE OFF/ON
Q11	7.8V/8.5V	8.5V/0V	8.6V	FM/AM
Q12	8.5V/7.8V	1.4V/8.5V	8.6V	FM/AM
Q13	9.2V	13.4V	8.6V	
Q14	0V/4.7V	8.6V/0V	0V	FM/AM
Q101	0V	1.5V	0V	
Q306	0V/0.6V	0V	0V	MUTE OFF/ON
Q307	0V/0.6V	0V	0V	MUTE OFF/ON
Q310	0V/0.6V	0V	0V	MUTE OFF/ON
Q311	0V/0.6V	0V	0V	MUTE OFF/ON
Q801	0V	5V	0V	
Q801	13.1V	8.3V	13.8V	
Q805	13V	13.7V	12.35V	
Q806	11.8V	12.5V	12.5V	
Q807	13.2V	13.7V	12.5V	
Q809	5.8V	12.9V	5V	
Q810	0V	5.6V	5.7V	
Q811	5V	0V	0V	
Q813	11.4V	12V	12.1V	
Q814	12.6V	0V	0V	
Q815	5.6V	13.7V	5V	
Q816	5.6V	13.7V	5V	
Q817	5.6V	5.8V	4.8V	
Q899	7.3V	13.7V	13.8V	
Q901	13.1V	0V	13.2V	
Q902	5V	0V	0V	
Q903	13.2V	0.3V	13.3V	
Q904	0V	13V	0V	
Q905	⎍	⎍	0V	
Q906	⎍	⎍	0V	
Q907	⎍	⎍	5.3V	
Q916	13.7V	0V	13.7V	
Q917	0V	13.3V	0V	
Q919	13V	13.7V	13.7V	
Q920	3.5V	0V	0V	

IC1

1	0V
2	3.7V
3	4.5V
4	1.2V

IC5

1	7.54V	12	2.35V
2	2V	13	2.87V
3	2.08V	14	2.94V
4	0V	15	0V
5	2.08V	16	3.47V
6	1.43V	17	0V
7	2.08V	18	3.07V
8	0.5V/0.7V	19	3.16V
9	2.98V	20	3.12V
10	0V	21	3.12V
11	0V/3.02V	22	5.42V

IC6

1	3.91V
2	3.85V
3	3.92V
4	0V
5	4.95V
6	3.5V
7	7.23V
8	7.87V

IC101

1	1.5V	5	0.1V
2	1.5V	6	4.8V
3	0V	7	4.8V
4	1.4V	8	4.9V

IC102

1	1.4V
2	1.5V
3	0V
4	0V
5	5V

IC620

1	5.03V
2	5.03V
3	0V
4	0.33V
5	0V

IC302

1	4.1V	8	4.2V
2	4.1V	9	4.2V
3	4.1V	10	4.2V
4	8.3V	11	0V
5	4.1V	12	4.2V
6	4.1V	13	4.2V
7	4.1V	14	4.2V

IC301

1	4.2V	8	4.1V
2	4.2V	9	4.1V
3	4.2V	10	4.1V
4	4.2V	11	4.1V
5	0V	12	4.7V
6	0V	13	4.7V
7	0V	14	8.3V

IC310

1	4.2V	8	4.2V
2	4.2V	9	4.2V
3	4.2V	10	4.2V
4	8.3V	11	0V
5	4.1V	12	4.2V
6	4.1V	13	4.2V
7	4.1V	14	4.2V

IC621

1	5.05V
2	0V
3	0V
4	5.05V
5	0V

IC610

1	0V	9	5.2V
2	0V	10	0V
3	5.2V	11	5.2V
4	0V	12	0V
5	5.2V	13	5.2V
6	5.2V	14	4.4V
7	0V	15	0V
8	0V	16	5.2V

IC605

1	5V
2	5V
3	0V

IC801

1	13.1V
2	0V
3	1.2V

IC805

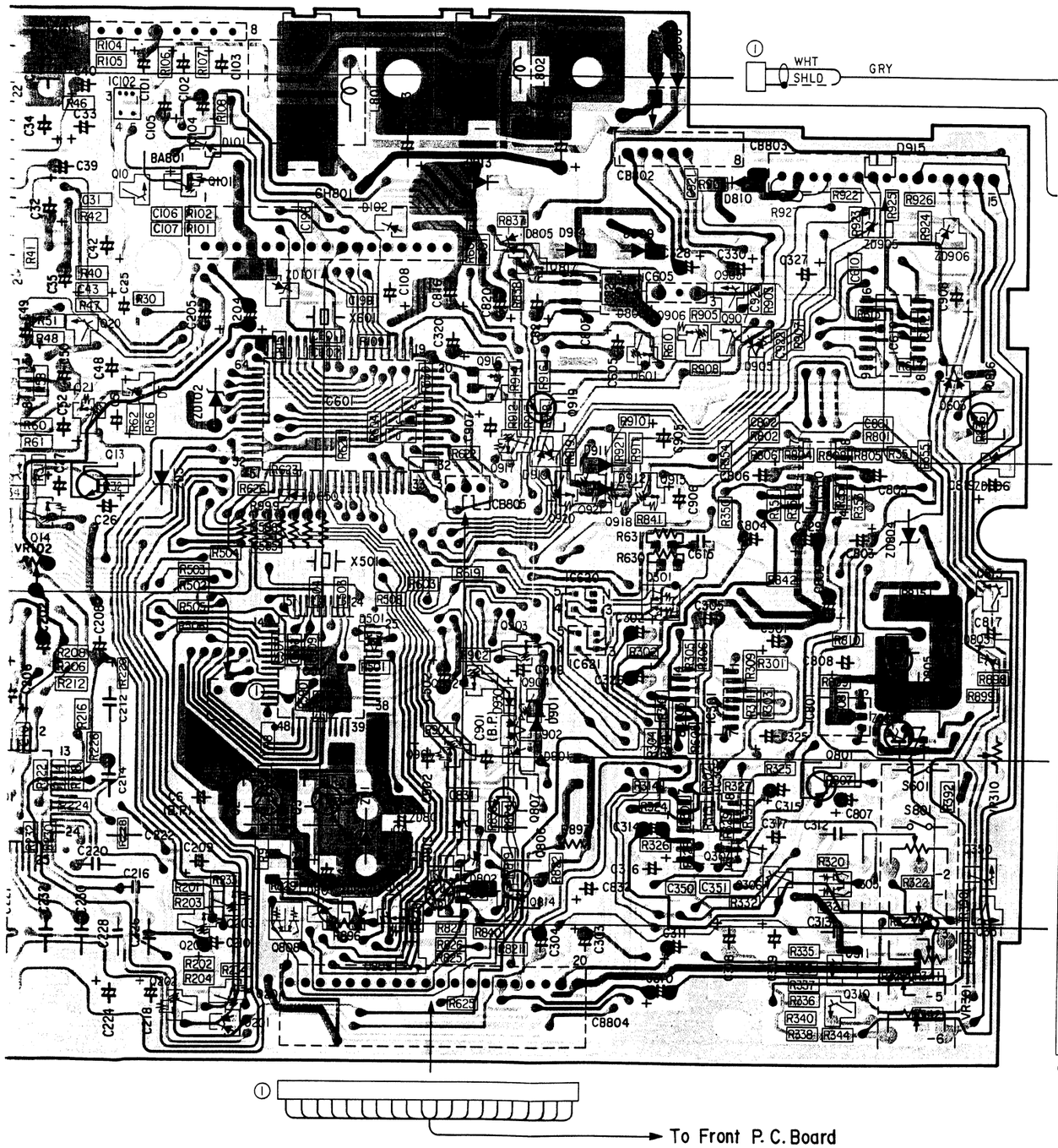
1	13.3V
2	7.3V
3	0.7V
4	5.6V
5	5.8V

IC601

1	⎍	9	⎍	17	4.9V	25	0V	33	0V	41	⎍	49	4.9V	57	5V
2	5.1V	10	0V	18	5V	26	0V	34	0V	42	0V	50	0V	58	5V
3	5V	11	0V	19	5V	27	0V	35	0V	43	⎍	51	4.2V	59	4.9V
4	0V	12	5V	20	5V	28	4.9V	36	0V	44	4.8V	52	⎍	60	5V
5	0V	13	5V	21	NC	29	⎍	37	4.9V	45	⎍	53	0V	61	0V
6	5V	14	5.1V	22	0V	30	4.9V	38	⎍	46	⎍	54	0V	62	0V
7	5V	15	5V	23	4.9V	31	5V	39	0V	47	⎍	55	0V	63	0V
8	⎍	16	4.9V	24	4.9V	32	5V	40	⎍	48	⎍	56	5V	64	0V

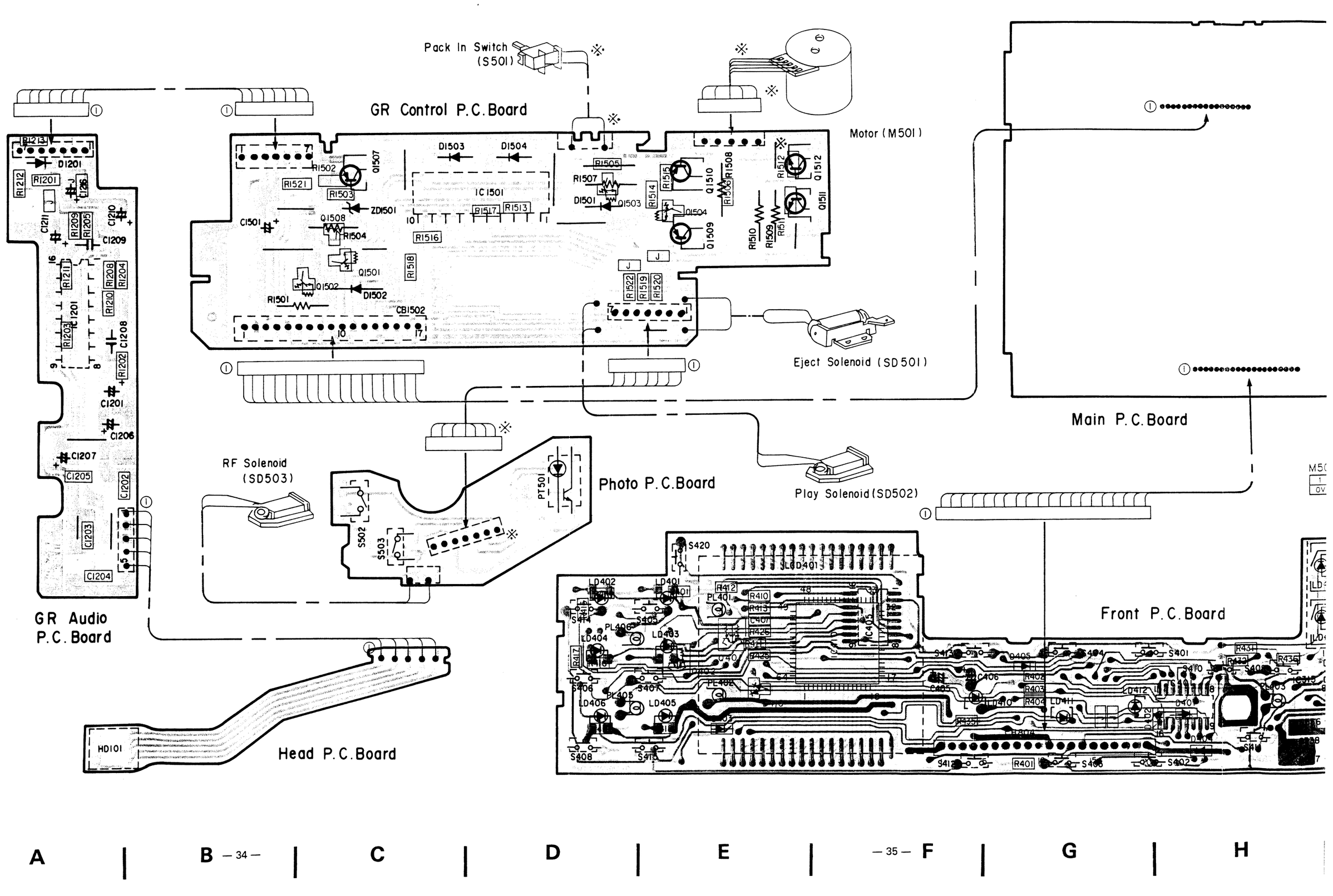
n (1/2)

Main P. C. Board

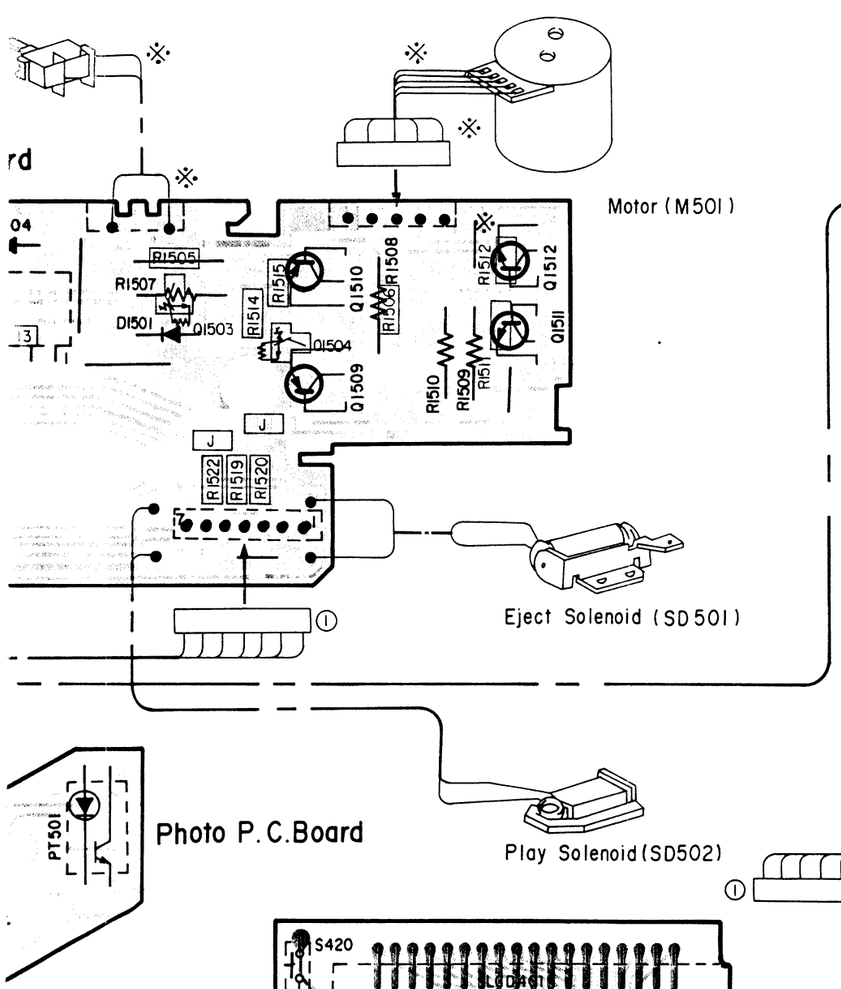


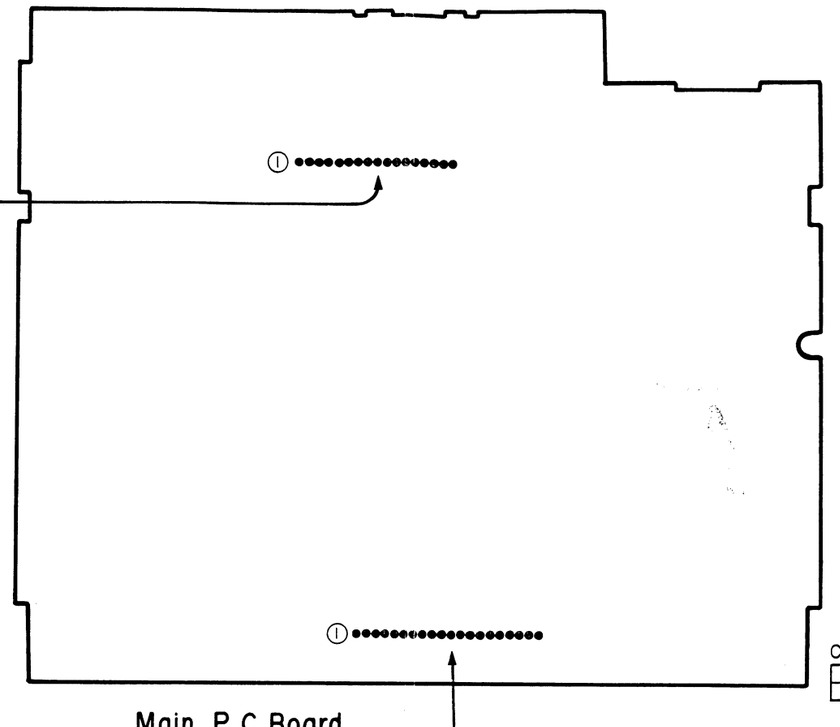
7390M 7390M

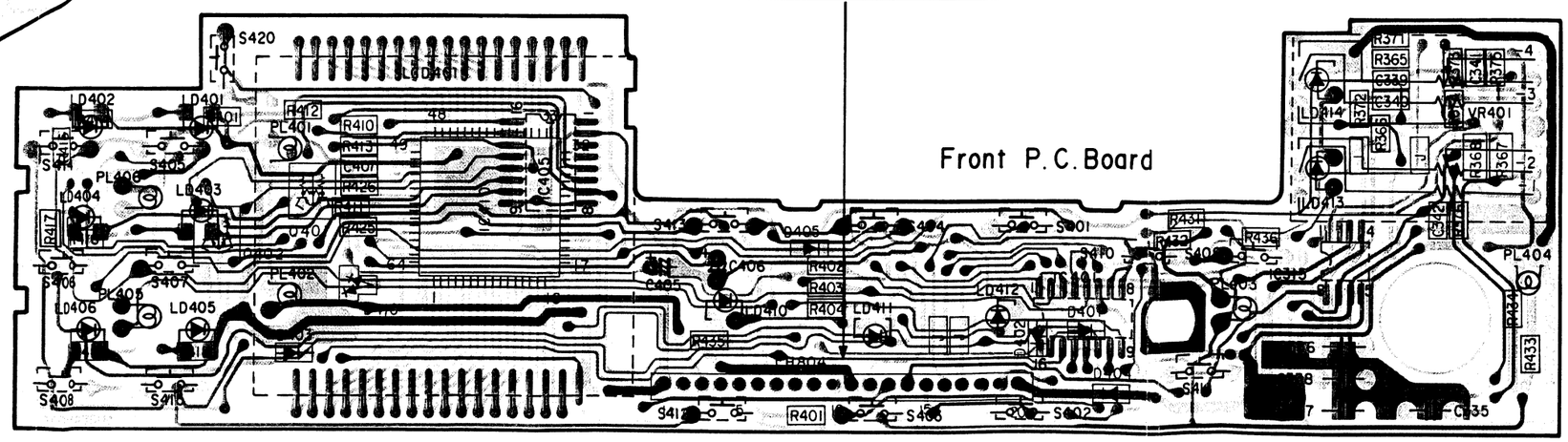
Parts Layout on P.C. Boards and Wiring Diagram (2/2)



n (2/2)


rd
Motor (M501)
R1505
R1507
D1501
Q1503
R1514
R1515
Q1510
R1508
R1506
Q1504
Q1509
R1510
R1509
R1511
R1512
Q1512
Q1511
R1522
R1519
R1520
Eject Solenoid (SD501)
Play Solenoid(SD502)
PT301
Photo P.C.Board


Main P.C.Board


Front P.C.Board
S420
LD402
LD401
PL401
PL406
LD404
LD403
PL402
PL405
LD406
LD405
S408
S407
S406
S409
S410
S411
S412
S413
S414
S415
S416
S417
S418
S419
S421
S422
S423
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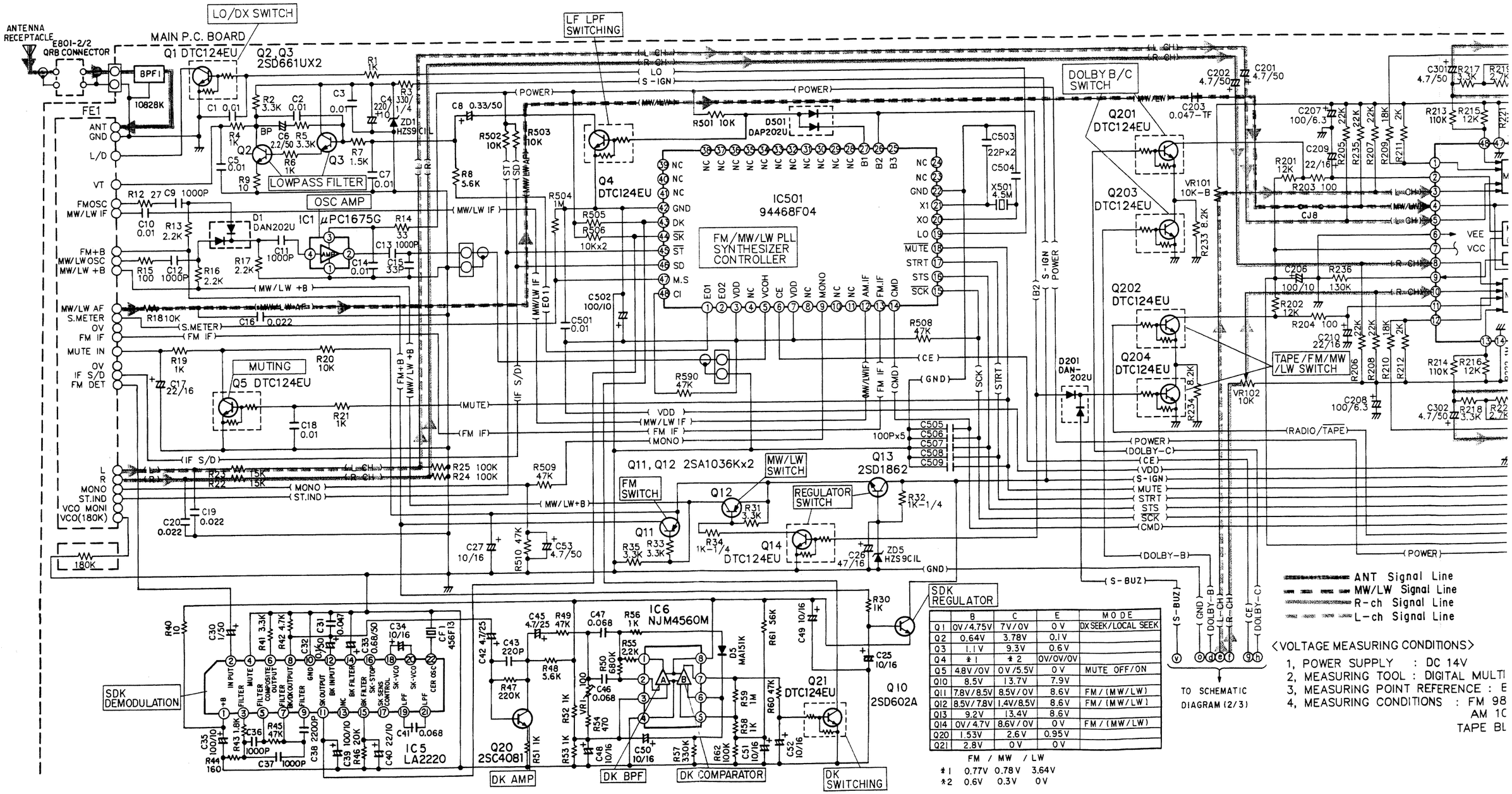
S457
S458
S459
S460

Schematic Diagram (1/3)

IC	IC1 IC5	IC6	IC501
TRANSISTOR	Q1 Q2 Q3 Q5	Q4 Q20	Q11 Q12 Q14 Q21 Q13 Q10 Q201,Q203 Q202,Q204

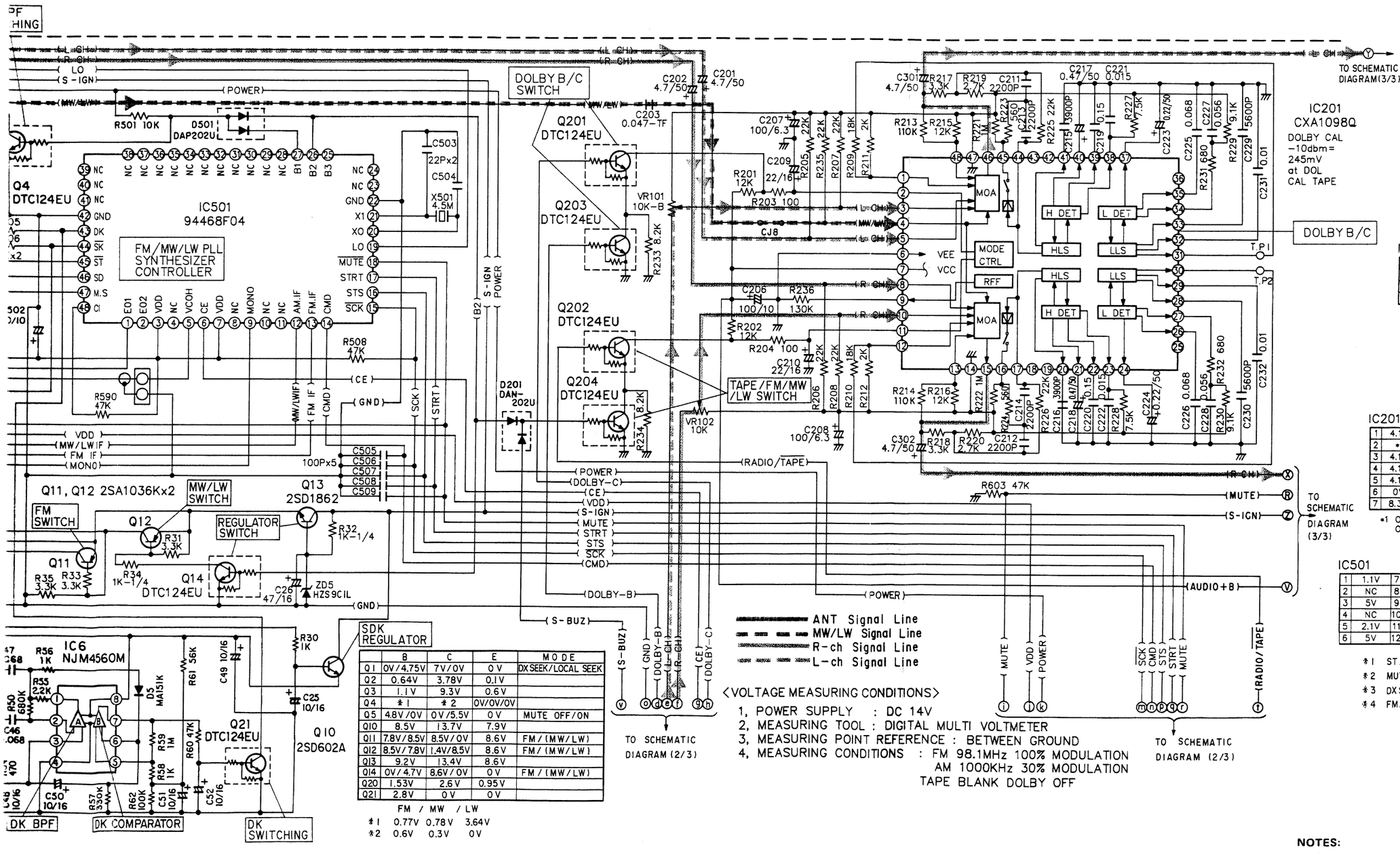


	B	C	E	MODE
Q1	0V/4.75V	7V/0V	0V	DX SEEK/LOCAL SEEK
Q2	0.64V	3.78V	0.1V	
Q3	1.1V	9.3V	0.6V	
Q4	*1	*2	0V/0V/0V	
Q5	4.8V/0V	0V/5.5V	0V	MUTE OFF/ON
Q10	8.5V	13.7V	7.9V	
Q11	7.8V/8.5V	8.5V/0V	8.6V	FM/(MW/LW)
Q12	8.5V/7.8V	1.4V/8.5V	8.6V	FM/(MW/LW)
Q13	9.2V	13.4V	8.6V	
Q14	0V/4.7V	8.6V/0V	0V	FM/(MW/LW)
Q20	1.53V	2.6V	0.95V	
Q21	2.8V	0V	0V	

FM / MW / LW
*1 0.77V 0.78V 3.64V
*2 0.6V 0.3V 0V

<VOLTAGE MEASURING CONDITIONS>
1, POWER SUPPLY : DC 14V
2, MEASURING TOOL : DIGITAL MULTI
3, MEASURING POINT REFERENCE : E
4, MEASURING CONDITIONS : FM 98
AM 1C
TAPE BL

IC501 IC201 IC6 Q4 Q201,Q203 Q202,Q204 Q11 Q12 Q14 Q21 Q13 Q10



	B			C			E		
Q201	OFF	B	C	OFF	B	C	OFF	B	C
	5V	5V	0V	0V	3.6V	8.1V	0V	3.6V	0V
Q203	OFF	B	C	OFF	B	C			
	5V	0V	5V	0V	3.6V	0V	0V		
Q202	FM	AM	TP	FM	AM	TP	FM	AM	TP
	4.2V	2.7V	0V	4.4V	0V	8.3V	2.9V	0V	0V
Q204									
	0V	4.7V	0V	2.9V	0V	0V	0V		

IC1	
1	0V
2	3.7V
3	4.5V
4	1.2V

IC6	
1	3.91V
2	3.85V
3	3.92V
4	0V
5	4.95V
6	3.5V
7	7.23V
8	7.87V

IC5			
1	7.54V	12	2.35V
2	2V	13	2.87V
3	2.08V	14	2.94V
4	0V	15	0V
5	2.08V	16	3.47V
6	1.43V	17	0V
7	2.08V	18	3.07V
8	0.5V/0.7V	19	3.16V
9	2.98V	20	3.12V
10	0V	21	3.12V
11	0V/3.02V	22	5.42V

IC201

1	4.1V	8	4.1V	16	3.4V	23	4.1V	35	0.3V	42	NC
2	*1	9	1.2V	17	4.1V	24	0.3V	36	0V	43	NC
3	4.1V	10	4.1V	18	NC	25	0V	37	0.3V	44	4.1V
4	4.1V	11	*2	19	NC	26	0.3V	38	4.1V	45	3.4V
5	4.1V	12	4.1V	20	4.1V	27	4.1V	39	0.3V	46	4.1V
6	0V	2	2	21	0.3V	2	2	40	0.3V	47	4.1V
7	8.3V	15	4.1V	22	0.3V	34	4.1V	41	4.1V	48	4.1V

*1 OFF/ B / C 0V/3.6V/8.3V

*2 FM / AM/TP. 4.5V/0V/8.3V

IC501

1	1.1V	7	5V	13	2.4V	19	*3	25	NC	43	3.7V
2	NC	8	NC	14		20		26	*4	44	3.7V
3	5V	9	*1	15		21		27	NC	45	3.7V
4	NC	10	NC	16		22	0V	2	2	46	3.7V
5	2.1V	11	NC	17		23	0V	41	NC	47	4.7V
6	5V	12	0V	18	*2	24	NC	42	0V	48	0V

*1 ST / MO : 0V / 5V

*2 MUTE OFF/ON : 5V/0V

*3 DX SEEK / LOCAL SEEK : 0V / 5 V

*4 FM/(MW/ LW) : 0V/4.8V

	B	C	E	MODE
Q1	0V/4.75V	7V/0V	0 V	DX SEEK/LOCAL SEEK
Q2	0.64V	3.78V	0.1V	
Q3	1.1V	9.3V	0.6V	
Q4	*1	*2	0V/0V/0V	
Q5	4.8V/0V	0V/5.5V	0 V	MUTE OFF/ON
Q10	8.5V	13.7V	7.9V	
Q11	7.8V/8.5V	8.5V/0V	8.6V	FM/(MW/LW)
Q12	8.5V/7.8V	1.4V/8.5V	8.6V	FM/(MW/LW)
Q13	9.2V	13.4V	8.6V	
Q14	0V/4.7V	8.6V/0V	0 V	FM/(MW/LW)
Q20	1.53V	2.6V	0.95V	
Q21	2.8V	0V	0V	

FM / MW / LW

*1 0.77V 0.78V 3.64V

*2 0.6V 0.3V 0V

<VOLTAGE MEASURING CONDITIONS>

1, POWER SUPPLY : DC 14V
2, MEASURING TOOL : DIGITAL MULTI VOLTMETER
3, MEASURING POINT REFERENCE : BETWEEN GROUND
4, MEASURING CONDITIONS : FM 98.1MHz 100% MODULATION
AM 1000KHz 30% MODULATION
TAPE BLANK DOLBY OFF

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

7390M 7390M

Schematic Diagram (2/3)

IC	IC1501 IC1201 IC102 IC101 IC605 IC601
TRANSISTOR (Q)	Q1509~Q1512 Q1503,Q1504 Q1507,Q1508 Q1501,Q1502 Q101

	B	C	E
Q601	0V	5V	0V
Q101	0V	1.5V	0V

	B	C	E		B	C	E
Q1501	5.1V	2.43V	0V	Q1509	12.84V	13.5V	13.5V
Q1502	5.1V	0.05V	0V	Q1510	13.6V	6.9V	13.5V
Q1503	5.1V	0.07V	0V	Q1511	6.52V	13.5V	7V
Q1504	0.4V	13.59V	0V	Q1512	7.24V	6.9V	7V
Q1507	12.98V	13.62V	13.73V				

IC610

1	0V	9	5.2V
2	0V	10	0V
3	5.2V	11	5.2V
4	0V	12	0V
5	5.2V	13	5.2V
6	5.2V	14	4.4V
7	0V	15	0V
8	0V	16	5.2V

IC601

1		9		17	4.9V	25	0V	33	0V	41		49	4.9V	57	5V		
2	5.1V	10	0V	18	5V	26	0V	34	0V	42	0V	50	0V	58	5V		
3	5V	11	0V	19	5V	27	0V	35	0V	43		51	4.2V	59	4.9V		
4	0V	12	5V	20	5V	28	4.9V	36	0V	44	4.8V	52		60	5V		
5	0V	13	5V	21	NC	29		37	4.9V	45		53	0V	61	0V		
6	5V	14	5.1V	22	0V	30	4.9V	38		46		54	0V	62	0V		
7	5V	15	5V	23	4.9V	31	5V	39	0V	47		55	0V	63	0V		
8		16	4.9V	24	4.9V	32	5V	40		48		56	5V	64	0V		

IC605

1	5V
2	5V
3	0V

IC101

1	1.5V	5	0.1V
2	1.5V	6	4.8V
3	0V	7	4.8V
4	1.4V	8	4.9V

IC1201

1	13.1V	5	2.9V	9	2.9V	13	2.9V
2	3.1V	6	2.9V	10		14	3.1V
3	4.9V	7	2.9V	11	2.9V	15	0.1V
4	3.1V	8	0V	12	2.9V	16	3.1V

IC620

1	5.03V
2	5.03V
3	0V
4	0.33V
5	0V

IC621

1	5.05V
2	0V
3	0V
4	5.05V
5	0V

IC102

1	1.4V
2	1.5V
3	0V
4	0V
5	5V

IC1501

1	0V	6	0V
2	0V	7	13.8V
3	7V	8	5.1V
4	0V	9	0.7V
5	13.8V	10	0V

PLAY FORWARD MODE

M501

1	2	3	4	5
0V	13.5V	7.0V	13.5V	6.9V

CB1502

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
0V	0V	0V	0V	13.8V	5.1V	14V	5.1V	14V	5.1V	5.1V	5.1	0V	0V	5.1V	5.1V		

5V~VDD, 0~1V, GND

GR CONTROL P.C. BOARD

MAIN P.C. BOARD

SOLENOID DRIVER

S501 PACK IN SW

SD501 EJECT SOL

SD502 PLAY SOL

IC1501 PU4124

D1502 10E2

R1513 20K, R1517 10K, R1518 10K, R1516 10K

R1522 1K-1/4, R1519 1K-1/4, R1520 51K, R1521 33K

MOTOR FORWARD/REVERSE SELECTOR

MOTOR +B POWER SUPPLY

Q1507 2SB793A, R1501 2.2-1/2

Q1510 2SB793A, Q1509 2SB793A

R1506 10K, R1508 1K-1/2, R1505 10K, R1507 1K-1/2, R1509 1K-1/2, R1510 1K-1/2, R1512 10K, R1511 10K

D1504 MA165TA, R1502 10K, R1503 20K, D1503 MA165TA, C1501 100/16, ZD1501 HZS11EB2

Q1508 2SD601A, R1504 1K-1/4

Q1512 2SD1994A x2, Q1511

Q1501 DTC124K

Q1502 DTC114K

R1515 10K, D1501 MA165TA, R1514 10K

Q1504 DTC114K, Q1503 DTC114K

MOTOR SPEED ADJUSTMENT & ON/OFF SELECTOR

PHOTO P.C.BOARD

PACK SW, METAL SW, RF SOL, DOWN SW

SD503 S502 S503 PT501 0N2170-R

GR AUDIO P.C.BOARD

TAPE EQ AMP

PLAY BACK HEAD HD101

IC1201 TA7705P

AMP-1, AMP-2, BIAS CIRCUIT, EQ, F/R

C1206 47/6.3, R1202 130, R1204 330K, R1208 11K, C1210 4.7/25, C1208 0.012, R1210 15K, R1201 100, D12011 MA165TA, C1216 100/16, R1213 3.3K, R1212 3.3K, C1204 330P, C1202 330P, C1203 330P, C1205 330P, C1207 47/6.3, C1209 0.012, R1211 15K, R1209 11K, C1211 4.7/25, C1201 10/16, R1203 130, R1205 330K

CB1502 ⇔ CH801

BATT, RUN DET, PACK DOWN, PLAY SOL, RF SOL, EJECT SOL, PACK IN SW, MOTOR FAST, IGN, F/R, METAL, P-GND, S-GND, R-CH, L-CH

MOT-CON, O-MOT

TO SCHEMATIC DIAGRAM (1/3)

C205 10/16, C204 10/16, C199 100P, ZD102 HZS5CLL

C108 100/6.3, R109 5.1K

C198 100P, D102 MA151K, ZD101 RD5.1MB1, X601 4.19M, C601 22P, C602 22P

IC101 M51143AL

R102 10K, R101 10K, C106 0.1, C107 0.1

Vcc, Vcc/2, SW, Q1 Q2, FF2, FF1, Q3 Q4, VREF, POWER ON RESET MUSIC SELECTION START SENSOR SW.

R104 1M, R105 390K, C101 3.3/50, R106 470K, C102 0.1/50, R107 47K, C103 2.2/50, R108 22K, C105 10/16, ACC +5V

IC102 TC4S66F

Q101 DTC124EU, C104 10/16, D101 MA151K

MUSIC SENSOR CIRCUIT

IGN, BATT, GND

GND, DOLBY-B, DOLBY-C, CE

IC 601 15590W07

MICON

1 RUN DET, 2 PACK DOWN, 3 PLAY-SOL, 4 RF-SOL, 5 EJECT-SOL, 6 MOTOR CT, 7 RESET, 8 X1, 9 X2, 10 LEVEL-OF, 11 MOT-FAST, 12 O-MOTOR, 13 F/R, 14 PACK-IN, 15 METAL, 16 MUSIC, 17 MUSIC, 18 LED-ON, 19 LOUD

64 IN REMOTE, 63 PAUSE-D(IN-PAUSE), 62 AUDIO MUTE (IN-INT), 61 SDK OUT(OUT-INT), 60 REMOTE(OUT-REM), 59 MUTE, 58 VDD, 57 VDD, 56 POWER

20 DTS-CE, 21 SDK BUZ, 22 CHANGER, 23 DOL-C, 24 DOL-B, 25 KEY P/S, 26 VSS, 27 VSS, 28 ACC

MUTE, VDD, POWER

R602 47K, R601 47K, IC605 S-8052ALR, R330 10K, R622 22K, R610 4.7K, C605 10/16

RESET, OUT, VREF

IC102 IC101 IC605 IC601 IC620 IC621 IC610

Q1507,Q1508
Q1501,Q1502 Q101 Q601

25	0V	33	0V	41	⎍	49	4.9V	57	5V
26	0V	34	0V	42	0V	50	0V	58	5V
27	0V	35	0V	43	⎍	51	4.2V	59	4.9V
28	4.9V	36	0V	44	4.8V	52	⎍	60	5V
29	⎍	37	4.9V	45	⎍	53	0V	61	0V
30	4.9V	38	⎍	46	⎍	54	0V	62	0V
31	5V	39	0V	47	⎍	55	0V	63	0V
32	5V	40	⎍	48	⎍	56	5V	64	0V

GND 0~1V 5V~VDD

8	9	10	11	12	13	14	15	16	17
5.1V	14V	5.1V	5.1V	5.1	0V	0V	5.1V	5.1V	

IC605

1	5V
2	5V
3	0V

IC101

1	1.5V	5	0.1V
2	1.5V	6	4.8V
3	0V	7	4.8V
4	1.4V	8	4.9V

IC1201

1	13.1V	5	2.9V	9	2.9V	13	2.9V
2	3.1V	6	2.9V	10		14	3.1V
3	4.9V	7	2.9V	11	2.9V	15	0.1V
4	3.1V	8	0V	12	2.9V	16	3.1V

IC102

1	1.4V
2	1.5V
3	0V
4	0V
5	5V

IC1501

1	0V	6	0V
2	0V	7	13.8V
3	7V	8	5.1V
4	0V	9	0.7V
5	13.8V	10	0V

PLAY FORWARD MODE

IC620

1	5.03V
2	5.03V
3	0V
4	0.33V
5	0V

IC621

1	5.05V
2	0V
3	0V
4	5.05V
5	0V

TO SCHEMATIC DIAGRAM (1/3)

<VOLTAGE MEASURING CONDITIONS>
1, POWER SUPPLY : DC 14V
2, MEASURING TOOL : DIGITAL MULTI VOLTMETER
3, MEASURING POINT REFERENCE : BETWEEN GROUND
4, MEASURING CONDITIONS : FM 98.1MHz 100% MODULATION
AM 1000KHz 30% MODULATION
TAPE BLANK DOLBY OFF

MAIN P.C. BOARD

CB1502 CH801

BATT, RUN DET, PACK DOWN, PLAY SOL, RF SOL, EJECT SOL, PACK IN SW, MOTOR FAST, IGN, F/R, METAL, P-GND, S-GND, R-CH, L-CH, GND

MOTOR +B POWER SUPPLY
Q1507 2SB793A
Q1508 2SD601A
Q1501 DTC124K
Q1502 DTC114K
Q1503 DTC114K
D1504 MA165TA
D1503 MA165TA
ZD1501 HZS11EB2
R1501 2.2-1/2
R1502 10K
R1503 20K
R1504 1K-1/4
C1501 100/16

MOTOR SPEED ADJUSTMENT & ON/OFF SELECTOR

IC101 M51143AL
R102 10K
R101 10K
C106 0.1
C107 0.1
C205 10/16
C204 10/16
C199 100P
ZD102 HZS5CLL
C108 100/6.3
R109 5.1K
C198 100P
D102 MA151K
ZD101 RD5.1MB1
X601 4.19M
C601 22P
C602 22P

IC102 TC4S66F
R104 1M
R105 390K
C101 3.3/50
R106 470K
C102 0.1/50
C103 2.2/50
R107 47K
R108 22K
C105 10/16
C104 10/16
D101 MA151K
Q101 DTC124EU

MUSIC SENSOR CIRCUIT

IC 601
15590W07
MICON

R602 47K
R601 47K
IC605 S-8052ALR
R330 10K
R622 22K
R610 4.7K
C605 10/16
Q601 DTC124EU
RESET CIRCUIT

CB805
ACC+5 DATA GND E1 REMO-CONT RCV

R623 10K
R 999 47Kx7
R925 10K
R924 100K
R626 47K
ZD906 RD5.1MB1
R631 1M
D650 MAITO
IC620
R630 2.7K
C615 0.033
IC621 TC4SU69Fx2
R619 47K
C815 0.1
C816 100/6.3
R625 100
S601 EJECT
R604 220K
CJ6 CJ5 CJ13 CJ14
SDK ALARM OSCILLATOR

IC610 μPD4538BG
C610 0.1
R615 1M
C612 100P
R617 10K
ENABLE VREF 2 VREF 1 CONTROL OUTPUT LATCH RESET LATCH

MUTE VDD POWER SCK CMD STS STRT S.BUZ RADIO/TAPE
IN PAUSE IN INT REMOTE POWER CONT. DATA 0-INT ACC +5V
RADIO/TAPE SDK BUZ INH LED-CE LCD-CE CLOCK DATA BATT SCK CMD STS STRT MUTE KEY-IN VOL-PUSH KEY AUTO-ME AUTO-ME AUTO-ME SDK
DTS CE SDK BUZ CHANGER DOL-C DOL-B KEY P/S VSS VSS ACC DISPLY-DT REMOCON BAND 2 BAND 1 SDK
KEY DATA VDD RESET BUZ
ACC +5V P/S CHANGER LED ON PACK DISPLAY-DATA LOUD GND BATT IGN

TO SCHEMATIC DIAGRAM (3/3)

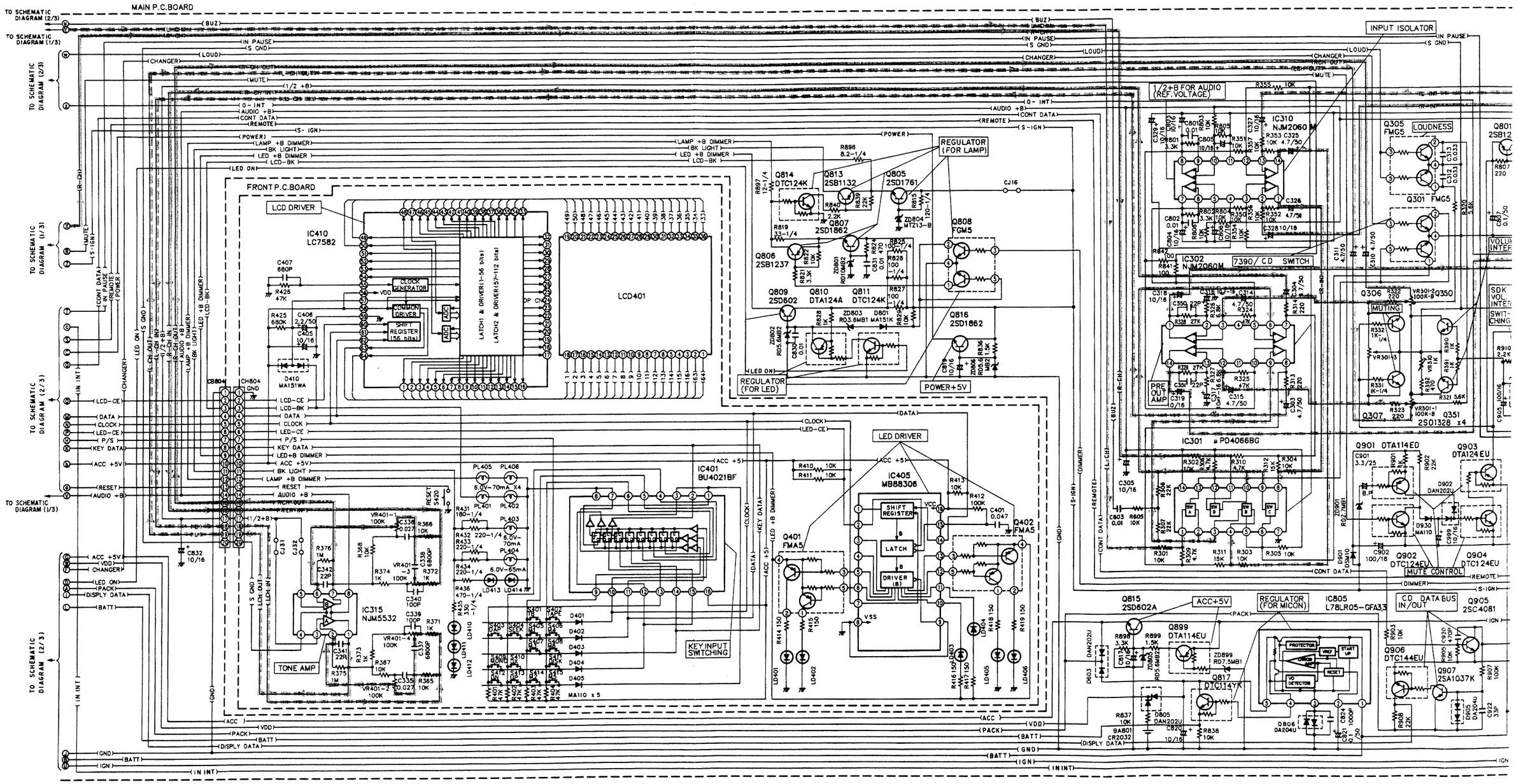
R-ch Signal Line
L-ch Signal Line

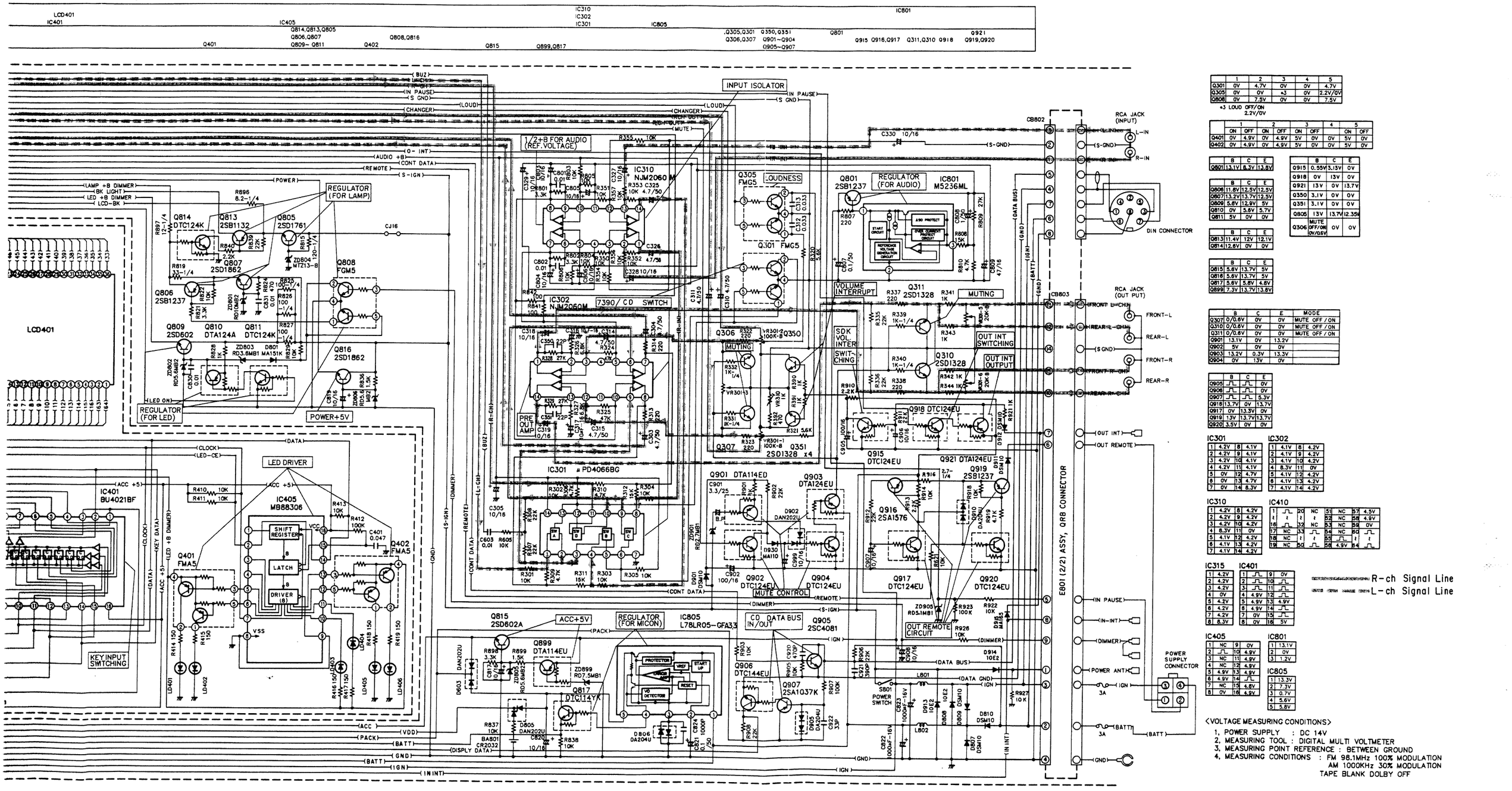
NOTES:
1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

7390M	7390M

Schematic Diagram (3/3)

IC	IC315	IC410	LCD401 IC401	IC405	IC310 IC302 IC301	IC805	
TRANSISTOR	Q401	Q814,Q813,Q805 Q806,Q807 Q809~ Q811	Q808,Q816	Q402	Q815	Q899,Q817	Q305,Q301 Q306,Q307 Q350,Q351 Q901~Q904 Q905~Q907 Q801





	1	2	3	4	5
Q301	0V	4.7V	0V	0V	4.7V
Q305	0V	0V	+3	0V	2.2V/0V
Q808	0V	7.5V	0V	0V	7.5V

+3 LOUD OFF/ON 2.2V/0V

	1		2		3		4		5	
	ON	OFF	ON	OFF	ON	OFF		ON	OFF	
Q401	0V	4.9V	0V	4.9V	5V	0V	0V	5V	0V	
Q402	0V	4.9V	0V	4.9V	5V	0V	0V	5V	0V	

	B	C	E
Q801	13.1V	8.3V	13.8V

	B	C	E
Q806	11.8V	12.5V	12.5V
Q807	13.2V	13.7V	12.5V
Q809	5.6V	12.9V	5V
Q810	0V	5.6V	5.7V
Q811	5V	0V	0V

	B	C	E
Q813	11.4V	12V	12.1V
Q814	12.6V	0V	0V

	B	C	E
Q815	5.6V	13.7V	5V
Q816	5.6V	13.7V	5V
Q817	5.6V	5.8V	4.8V
Q899	7.3V	13.7V	13.8V

	B	C	E
Q915	0.55V	3.13V	0V
Q918	0V	13V	0V
Q921	13V	0V	13.7V
Q350	3.1V	0V	0V
Q351	3.1V	0V	0V
Q805	13V	13.7V	12.35V
Q306	MUTE OFF/ON 0V/0.6V	0V	0V

	B	C	E	MODE
Q307	0/0.6V	0V	0V	MUTE OFF/ON
Q310	0/0.6V	0V	0V	MUTE OFF/ON
Q311	0/0.6V	0V	0V	MUTE OFF/ON
Q901	13.1V	0V	13.2V	
Q902	5V	0V	0V	
Q903	13.2V	0.3V	13.3V	
Q904	0V	13V	0V	

	B	C	E
Q905	⊓	⊓	0V
Q906	⊓	⊓	0V
Q907	⊓	⊓	5.3V
Q918	13.7V	0V	13.7V
Q917	0V	13.5V	0V
Q919	13V	13.7V	13.7V
Q920	3.5V	0V	0V

IC301

1	4.2V	8	4.1V
2	4.2V	9	4.1V
3	4.2V	10	4.1V
4	4.2V	11	4.1V
5	0V	12	4.7V
6	0V	13	4.7V
7	0V	14	8.3V

IC302

1	4.1V	8	4.2V
2	4.1V	9	4.2V
3	4.1V	10	4.2V
4	8.3V	11	0V
5	4.1V	12	4.2V
6	4.1V	13	4.2V
7	4.1V	14	4.2V

IC310

1	4.2V	8	4.2V
2	4.2V	9	4.2V
3	4.2V	10	4.2V
4	8.3V	11	0V
5	4.1V	12	4.2V
6	4.1V	13	4.2V
7	4.1V	14	4.2V

IC410

1	⊓	20	NC	51	NC	57	4.5V
↕	↕	↕	↕	↕	↕	↕	↕
16	⊓	32	NC	52	NC	58	4.9V
17	NC	33	⊓	53	NC	59	0V
18	NC	34	⊓	54	NC	60	↕
19	NC	50	⊓	55	4.9V	84	↕

IC315

1	4.2V		
2	4.2V		
3	4.2V		
4	0V		
5	4.2V		
6	4.2V		
7	4.2V		
8	8.3V		

IC401

1	⊓	9	0V
2	⊓	10	⊓
3	⊓	11	⊓
4	4.9V	12	⊓
5	4.9V	13	4.9V
6	4.9V	14	⊓
7	0V	15	⊓
8	0V	16	5V

IC405

1	NC	9	0V
2	⊓	10	4.9V
3	NC	11	4.9V
4	NC	12	4.9V
5	4.9V	13	4.9V
6	4.9V	14	⊓
7	NC	15	4.8V
8	0V	16	4.9V

IC801

1	13.1V
2	0V
3	1.2V

IC805

1	13.3V
2	7.3V
3	0.7V
4	5.6V
5	5.8V

<VOLTAGE MEASURING CONDITIONS>

1, POWER SUPPLY : DC 14V
2, MEASURING TOOL : DIGITAL MULTI VOLTMETER
3, MEASURING POINT REFERENCE : BETWEEN GROUND
4, MEASURING CONDITIONS : FM 98.1MHz 100% MODULATION
AM 1000KHz 30% MODULATION
TAPE BLANK DOLBY OFF

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1{,}000{,}000}$

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.
uF=microfarads. pF=picofarads

Abbreviations

RES.=Resistor	CAP.=Capacitor
C.F.=Carbon Film	ELY.=Electrolytic
M.F.=Metal Film	CER.=Ceramic
M.O.=Metal Oxide Film	MYL.=Mylar
M.P.=Metal Plate	TAN.=Tantalum
TR.=Transistor	POLY.=Polystyrol
TRANS.=Transformer	PP.=Polypropylene
CP.=Chip	PLT.=Polyethylene

Symbol No.	Part No.	Description		
Main P. C. Board				
IC's				
IC1	51T96030F01	UPC1675G		
IC5	51T69141F01	LA2220		
IC6	51T90936F01	NJM4560M		
IC101	51T67915F01	M51143AL		
IC102	51T93532F07	TC4S66F		
IC201	51T15654W01	CXA1098Q		
IC301	51T91081F01	UPD4066BG		
IC302	51T93340F01	NJM2060M		
IC310	51T93340F01	NJM2060M		
IC501	51T94468F04	94468F04		
IC601	51T15522W04	15522W04		
or	51T15590W07	15590W07		
IC605	51T92166F01	S-8052ALR		
IC610	51T90267F02	UPD4538BG		
IC620	51T93532F02	TC4SU69F		
IC621	51T93532F02	TC4SU69F		
IC801	51T90890F01	M5236ML		
IC805	51T15268W06	L78LR05GFA3.3		
Transistors				
Q1	48T94606F03	CP., DTC124EU		
Q2	48T42182U01	2SD661		
Q3	48T42182U01	2SD661		
Q4	48T94606F03	CP., DTC124EU		
Q5	48T94606F03	CP., DTC124EU		
Q10	48T52439F03	2SD602A		
Q11	48T63419F01	CP., 2SA1036K		
Q12	48T63419F01	CP., 2SA1036K		
Q13	48T83834F03	2SD1862		
Q14	48T94606F03	CP., DTC124EU		
Q20	48T94582F01	CP., 2SC4081		
Q21	48T94606F03	CP., DTC124EU		
Q101	48T94606F03	CP., DTC124EU		
Q201	48T94606F03	CP., DTC124EU		
Q202	48T94606F03	CP., DTC124EU		
Q203	48T94606F03	CP., DTC124EU		
Q204	48T94606F03	CP., DTC124EU		
Q301	48T73888F15	CP., FMG5		
Q305	48T73888F15	CP., FMG5		
Q306	48T63788F02	CP., 2SD1328		
Q307	48T63788F02	CP., 2SD1328		
Q310	48T63788F02	CP., 2SD1328		
Q311	48T63788F02	CP., 2SD1328		
Q350	48T63788F02	CP., 2SD1328		
Q351	48T63788F02	CP., 2SD1328		
Q601	48T94606F03	CP., DTC124EU		
Q801	48T83417F03	2SB1237		
Q806	48T83417F03	2SB1237		
Q807	48T83834F03	2SD1862		
Q808	48T73888F15	CP., FMG5		
Q809	48T52439F03	2SD602A		
Q810	48T62966F03	CP., DTA124		
Q811	48T62967F03	CP., DTC124K		
Q813	48T80611F01	2SB1132		
Q814	48T62967F03	CP., DTC124K		
Q815	48T52439F03	2SD602A		
Q816	48T83834F03	2SD1862		
Q817	48T62967F06	CP., DTC114YK		
Q899	48T94606F56	CP., DTA114EU		
Q901	48T94606F56	CP., DTA114EU		
Q902	48T94606F03	CP., DTC124EU		
Q903	48T94606F53	CP., DTA124EU		
Q904	48T94606F03	CP., DTC124EU		
Q905	48T94582F01	CP., 2SC4081		
Q906	48T94606F01	CP., DTC144EU		
Q907	48T63420F04	CP., 2SA1037K		
Q915	48T94606F03	CP., DTC124EU		
Q916	48T94581F01	CP., 2SA1576		
Q917	48T94606F03	CP., DTC124EU		
Q918	48T94606F03	CP., DTC124EU		
Q919	48T83417F03	2SB1237		
Q920	48T94606F03	CP., DTC124EU		
Q921	48T94606F53	CP., DTA124EU		
Diodes				
D1	48T94608F03	CP., DAN202U		
D5	48T65992F01	CP., MA151K		
D101	48T65992F01	CP., MA151K		
D102	48T65992F01	CP., MA151K		
D201	48T94608F03	CP., DAN202U		

Symbol No.	Part No.	Description		
D501	48T94608F02	CP., DAP202U		
D603	48T94608F03	CP., DAN202U		
D650	48T90681F01	MA110		
D801	48T65992F01	CP., MA151K		
D805	48T94608F03	CP., DAN202U		
D806	48T94608F01	CP., DA204U		
D807	48T15512W01	CP., DSM10		
D808	48C40235G02	10E2		
D809	48T15512W01	CP., DSM10		
D810	48T15512W01	CP., DSM10		
D901	48T15512W01	CP., DSM10		
D902	48T94608F03	CP., DAN202U		
D905	48T94608F01	CP., DA204U		
D910	48T94608F01	CP., DA204U		
D911	48T15512W01	CP., DSM10		
D912	48T15512W01	CP., DSM10		
D913	48C40235G02	10E2		
D914	48C40235G02	10E2		
D915	48T44813F02	MA165		
D930	48T90681F01	MA110		
ZD1	48T83128F25	Zener, HZS9C1L		
ZD5	48T83128F25	Zener, HZS9C1L		
ZD101	48T62934F18	Zener, CP., RD5.1MB1		
ZD102	48T91071F12	Zener, HZS5CLL		
ZD801	48T62934F49	Zener, CP., RD13MB2		
ZD802	48T62934F22	Zener, RD5.6MB2		
ZD803	48T62934F08	Zener, CP., RD3.6MB1		
ZD804	48T68699F41	Zener, MTZ13-B		
ZD805	48T62934F22	Zener, RD5.6MB2		
ZD806	48T62934F22	Zener, RD5.6MB2		
ZD899	48T62934F30	Zener, CP., RD7.5MB1		
ZD901	48T62934F02	Zener, CP., RD2.7MB1		
ZD905	48T62934F18	Zener, CP., RD5.1MB1		
ZD906	48T62934F18	Zener, CP., RD5.1MB1		
Coils/Crystals/Filter				
L801	25C40894G11	Coil, Choke Trans		
L802	25T47510F04	Coil, Choke Filter		
X501	48T67096F01	Crystal, 4.5MHz		
X601	91T92651F01	Crystal, 4.19MHz		
CF1	91T69142F01	Filter, 456F13		
BPF1	91T16380W01	Filter, 10828K		

Symbol No.	Part No.	Description		
Capacitors				
C1	08S65128F69	CP., 0.01 μF		
C2	08S65128F69	CP., 0.01 μF		
C3	08S65128F69	CP., 0.01 μF		
C4	23S92017F01	ELY., 220 μF/10V		
C5	08S65128F69	CP., 0.01 μF		
C6	23T82372F19	ELY., (BP) 2.2 μF/50V		
C7	08S65128F69	CP., 0.01 μF		
C8	23S61523F27	ELY., 0.33 μF/50V		
C9	08S65128F57	CP., 1000pF		
C10	08S65128F69	CP., 0.01 μF		
C11	08S65128F57	CP., 1000pF		
C12	08S65128F57	CP., 1000pF		
C13	08S65128F57	CP., 1000pF		
C14	08S65128F69	CP., 0.01 μF		
C15	08S65128F23	CP., 33pF		
C16	08S65128F72	CP., 0.022 μF		
C17	23T15901W15	ELY., 22 μF/16V		
C18	08S65128F69	CP., 0.01 μF		
C19	08S65128F72	CP., 0.022 μF		
C20	08S65128F72	CP., 0.022 μF		
C25	23S61523F12	ELY., 10 μF/16V		
C26	23T15901W17	ELY., 47 μF/16V		
C27	23T15901W14	ELY., 10 μF/16V		
C30	23S61523F29	ELY., 1 μF/50V		
C31	08S65128F74	CP., 0.047 μF		
C32	23S61523F25	ELY., 0.1 μF/50V		
C33	23S61523F35	ELY., 0.68 μF/50V		
C34	23S61523F12	ELY., 10 μF/16V		
C35	23S61523F34	ELY., 100 μF/10V		
C36	08T57705F05	MYL., 1000pF		
C37	08T57705F05	MYL., 1000pF		
C38	08T57705F09	MYL., 2200pF		
C39	23S61523F34	ELY., 100 μF/10V		
C40	23S61523F09	ELY., 22 μF/10V		
C41	08T57705F27	MYL., 0.068 μF		
C42	23S61523F17	ELY., 4.7 μF/25V		
C43	08S65128F43	CP., 220pF		
C45	23S61523F17	ELY., 4.7 μF/25V		
C46	08T57705F27	MYL., 0.068 μF		
C47	08T57705F27	MYL., 0.068 μF		
C48	23S61523F12	ELY., 10 μF/16V		
C49	23S61523F12	ELY., 10 μF/16V		
C50	23S61523F12	ELY., 10 μF/16V		
C51	23S61523F12	ELY., 10 μF/16V		
C52	23S61523F12	ELY., 10 μF/16V		
C53	23T15901W32	ELY., 4.7 μF/50V		
C101	23T15901W31	ELY., 3.3 μF/50V		
C102	23T15901W25	ELY., 0.1 μF/50V		
C103	23T15901W30	ELY., 2.2 μF/50V		
C104	23T15901W14	ELY., 10 μF/16V		

Symbol No.	Part No.	Description		
C105	23T15901W14	ELY., 10 μ F/16V		
C106	08S65128F76	CP., 0.1 μ F		
C107	08S65128F76	CP., 0.1 μ F		
C108	23T15901W08	ELY., 100 μ F/6.3V		
C198	08S65128F35	CP., 100pF		
C199	08S65128F35	CP., 100pF		
C201	23T15901W32	ELY., 4.7 μ F/50V		
C202	23T15901W32	ELY., 4.7 μ F/50V		
C203	08T90316F25	TF, 0.047 μ F		
C204	23T15901W14	ELY., 10 μ F/16V		
C205	23T15901W14	ELY., 10 μ F/16V		
C206	23T15901W13	ELY., 100 μ F/10V		
C207	23T15901W08	ELY., 100 μ F/6.3V		
C208	23T15901W08	ELY., 100 μ F/6.3V		
C209	23T15901W15	ELY., 22 μ F/16V		
C210	23T15901W15	ELY., 22 μ F/16V		
C211	08T90316F09	TF, 2200pF		
C212	08T90316F09	TF, 2200pF		
C213	08T50579F30	TF, 2200pF		
C214	08T90316F09	TF, 2200pF		
C215	08T90316F12	TF, 3900pF		
C216	08T90316F12	TF, 3900pF		
C217	23T15901W28	ELY., 0.47 μ F/50V		
C218	23T15901W28	ELY., 0.47 μ F/50V		
C219	08T90316F31	TF, 0.15 μ F		
C220	08T90316F31	TF, 0.15 μ F		
C221	08T90316F19	TF, 0.015 μ F		
C222	08T90316F19	TF, 0.015 μ F		
C223	23T15901W26	ELY., 0.22 μ F/50V		
C224	23T15901W26	ELY., 0.22 μ F/50V		
C225	08T90316F27	TF, 0.068 μ F		
C226	08T90316F27	TF, 0.068 μ F		
C227	08T90316F26	TF, 0.056 μ F		
C228	08T90316F26	TF, 0.056 μ F		
C229	08T90316F14	TF, 5600pF		
C230	08T90316F14	TF, 5600pF		
C231	08T90316F17	TF, 0.01 μ F		
C232	08T90316F17	TF, 0.01 μ F		
C301	23T15901W32	ELY., 4.7 μ F/50V		
C302	23T15901W32	ELY., 4.7 μ F/50V		
C303	23T15901W32	ELY., 4.7 μ F/50V		
C304	23T15901W32	ELY., 4.7 μ F/50V		
C305	23T15901W14	ELY., 10 μ F/16V		
C310	23T15901W32	ELY., 4.7 μ F/50V		
C311	23T15901W32	ELY., 4.7 μ F/50V		
C312	08T90316F23	TF, 0.033 μ F		
C313	08T90316F23	TF, 0.033 μ F		
C314	23T15901W32	ELY., 4.7 μ F/50V		
C315	23T15901W32	ELY., 4.7 μ F/50V		
C316	23T15901W14	ELY., 10 μ F/16V		

Symbol No.	Part No.	Description		
C317	23T15901W14	ELY., 10 μ F/16V		
C318	23T15901W14	ELY., 10 μ F/16V		
C319	23T15901W14	ELY., 10 μ F/16V		
C320	23T15901W14	ELY., 10 μ F/16V		
C325	23T15901W32	ELY., 4.7 μ F/50V		
C326	23T15901W32	ELY., 4.7 μ F/50V		
C327	23T15901W14	ELY., 10 μ F/16V		
C328	23T15901W14	ELY., 10 μ F/16V		
C329	23T15901W14	ELY., 10 μ F/16V		
C330	23T15901W14	ELY., 10 μ F/16V		
C350	08S65128F19	CP., 22pF		
C351	08S65128F19	CP., 22pF		
C501	08S65128F69	CP., 0.01 μ F		
C502	23T15901W13	ELY., 100 μ F/10V		
C503	08S65128F19	CP., 22pF		
C504	08S65128F19	CP., 22pF		
C505	08S65128F35	CP., 100pF		
C506	08S65128F35	CP., 100pF		
C507	08S65128F35	CP., 100pF		
C508	08S65128F35	CP., 100pF		
C509	08S65128F35	CP., 100pF		
C601	08S53332F15	CP., 22pF		
C602	08S53332F15	CP., 22pF		
C603	08S65128F69	CP., 0.01 μ F		
C605	23T15901W14	ELY., 10 μ F/16V		
C610	08S53332F57	CP., 0.1 μ F		
C612	08S65128F35	CP., 100pF		
C615	08T15399W02	CP., 0.033 μ F		
C801	08S65128F69	CP., 0.01 μ F		
C802	08S65128F69	CP., 0.01 μ F		
C803	23T15901W14	ELY., 10 μ F/16V		
C804	23T15901W14	ELY., 10 μ F/16V		
C805	23T15901W14	ELY., 10 μ F/16V		
C806	23T15901W14	ELY., 10 μ F/16V		
C807	23T15901W25	ELY., 0.1 μ F/50V		
C808	23T15901W29	ELY., 1 μ F/50V		
C809	23T15901W17	ELY., 47 μ F/16V		
C815	08S65128F76	CP., 0.1 μ F		
C816	23T15901W08	ELY., 100 μ F/6.3V		
C817	23T15901W14	ELY., 10 μ F/16V		
C819	23T15901W14	ELY., 10 μ F/16V		
C820	23T15901W14	ELY., 10 μ F/16V		
C821	23T15901W25	ELY., 0.1 μ F/50V		
C822	23T51232F02	ELY., 1000 μ F/16V		
C823	23T51232F02	ELY., 1000 μ F/16V		
C824	08S65128F57	CP., 1000pF		
C830	08S65128F69	CP., 0.01 μ F		
C831	08S65128F69	CP., 0.01 μ F		
C832	23T15901W14	ELY., 10 μ F/16V		
C901	23T82372F10	ELY., (BP) 3.3 μ F/25V		

Symbol No.	Part No.	Description		
C902	23S92017F03	ELY., 100 μ F/16V		
C905	23S92017F03	ELY., 100 μ F/16V		
C906	23S61523F12	ELY., 10 μ F/16V		
C907	23T15901W14	ELY., 10 μ F/16V		
C908	23T15901W14	ELY., 10 μ F/16V		
C920	08S65128F51	CP., 470pF		
C921	08S65128F49	CP., 390pF		
C922	08S65128F23	CP., 33pF		
C999	23T15901W14	ELY., 10 μ F/16V		
Resistors (All resistors are chip 1/16W±5% unless otherwise noted.)				
R1	06S64995F53	1k ohm		
R2	06S64995F65	3.3k ohm		
R3	06T70072F41	330 ohm 1/4W		
R4	06S64995F53	1k ohm		
R5	06S64995F65	3.3k ohm		
R6	06S64995F53	1k ohm		
R7	06S64995F57	1.5k ohm		
R8	06S64995F71	5.6k ohm		
R9	06S64995F05	10 ohm		
R12	06S64995F15	27 ohm		
R13	06S64995F61	2.2k ohm		
R14	06S64995F17	33 ohm		
R15	06S64995F29	100 ohm		
R16	06S64995F61	2.2k ohm		
R17	06S64995F61	2.2k ohm		
R18	06S64995F77	10k ohm		
R19	06S64995F53	1k ohm		
R20	06S64995F77	10k ohm		
R21	06S64995F53	1k ohm		
R22	06S64995F81	15k ohm		
R23	06S64995F81	15k ohm		
R24	06S64996F02	100k ohm		
R25	06S64996F02	100k ohm		
R30	06S64995F53	1k ohm		
R31	06S64995F65	3.3k ohm		
R32	06T70072F53	1k ohm 1/4W		
R33	06S64995F65	3.3k ohm		
R34	06T70072F53	1k ohm 1/4W		
R35	06S64995F65	3.3k ohm		
R40	06S64995F05	10 ohm		
R41	06S64995F65	3.3k ohm		
R42	06S53330F69	4.7k ohm 1/8W		
R43	06S64995F59	1.8k ohm		
R44	06S64995F34	160 ohm		
R45	06S64995F93	47k ohm		
R46	06S64995F84	20k ohm		
R47	06S64996F10	220k ohm		
R48	06S64995F71	5.6k ohm		
R49	06S64995F93	47k ohm		
R50	06S64996F22	680k ohm		

Symbol No.	Part No.	Description		
R51	06S64995F53	1k ohm		
R52	06S64995F53	1k ohm		
R53	06S64995F53	1k ohm		
R54	06S64995F45	470 ohm		
R55	06S64995F61	2.2k ohm		
R56	06S64995F53	1k ohm		
R57	06S64996F14	330k ohm		
R58	06S64995F53	1k ohm		
R59	06S64996F26	1M ohm		
R60	06S64995F93	47k ohm		
R61	06S64995F95	56k ohm		
R62	06S64996F02	100k ohm		
R101	06S64995F77	10k ohm		
R102	06S64995F77	10k ohm		
R104	06S64996F26	1M ohm		
R105	06S64996F16	390k ohm		
R106	06S64996F18	470k ohm		
R107	06S64995F93	47k ohm		
R108	06S64995F85	22k ohm		
R109	06S64995F70	5.1k ohm		
R201	06S64995F79	12k ohm		
R202	06S64995F79	12k ohm		
R203	06S64995F29	100 ohm		
R204	06S64995F29	100 ohm		
R205	06S64995F85	22k ohm		
R206	06S64995F85	22k ohm		
R207	06S64995F85	22k ohm		
R208	06S64995F85	22k ohm		
R209	06S64995F83	18k ohm		
R210	06S64995F83	18k ohm		
R211	06S64995F60	2k ohm		
R212	06S64995F60	2k ohm		
R213	06S64996F03	110k ohm		
R214	06S64996F03	110k ohm		
R215	06S64995F79	12k ohm		
R216	06S64995F79	12k ohm		
R217	06S64995F65	3.3k ohm		
R218	06S64995F65	3.3k ohm		
R219	06S64995F63	2.7k ohm		
R220	06S64995F63	2.7k ohm		
R221	06S64996F26	1M ohm		
R222	06S64996F26	1M ohm		
R223	06S64995F47	560 ohm		
R224	06S64995F47	560 ohm		
R225	06S64995F85	22k ohm		
R226	06S64995F85	22k ohm		
R227	06S64995F74	7.5k ohm		
R228	06S64995F74	7.5k ohm		
R229	06S64995F76	9.1k ohm		
R230	06S64995F76	9.1k ohm		

Symbol No.	Part No.	Description		
R231	06S64995F49	680 ohm		
R232	06S64995F49	680 ohm		
R233	06S64995F75	8.2k ohm		
R234	06S64995F75	8.2k ohm		
R235	06S64995F85	22k ohm		
R236	06S64996F05	130k ohm		
R301	06S64995F77	10k ohm		
R302	06S64995F77	10k ohm		
R303	06S64995F77	10k ohm		
R304	06S64995F77	10k ohm		
R305	06S64995F77	10k ohm		
R306	06S64995F69	4.7k ohm		
R307	06S64995F85	22k ohm		
R308	06S64995F85	22k ohm		
R309	06S64995F69	4.7k ohm		
R310	06S64995F69	4.7k ohm		
R311	06S64995F81	15k ohm		
R312	06S64995F81	15k ohm		
R313	06S64995F37	220 ohm		
R314	06S64995F37	220 ohm		
R320	06S64995F71	5.6k ohm		
R321	06S64995F71	5.6k ohm		
R322	06S64995F37	220 ohm		
R323	06S64995F37	220 ohm		
R324	06S64995F93	47k ohm		
R325	06S64995F93	47k ohm		
R326	06S64995F73	6.8k ohm		
R327	06S64995F73	6.8k ohm		
R328	06S64995F87	27k ohm		
R329	06S64995F87	27k ohm		
R330	06S64995F77	10k ohm		
R331	06T70072F53	1k ohm 1/4W		
R332	06T70072F53	1k ohm 1/4W		
R335	06S64995F85	22k ohm		
R336	06S64995F85	22k ohm		
R337	06S64995F37	220 ohm		
R338	06S64995F37	220 ohm		
R339	06T70072F53	1k ohm 1/4W		
R340	06T70072F53	1k ohm 1/4W		
R341	06S64995F53	1k ohm		
R342	06S64995F53	1k ohm		
R343	06S64995F53	1k ohm		
R344	06S64995F53	1k ohm		
R350	06S64995F77	10k ohm		
R351	06S64995F77	10k ohm		
R352	06S64995F77	10k ohm		
R353	06S64995F77	10k ohm		
R354	06S64995F77	10k ohm		
R355	06S64995F77	10k ohm		
R356	06S64995F77	10k ohm		

Symbol No.	Part No.	Description		
R357	06S64995F77	10k ohm		
R390	06T70072F53	1k ohm 1/4W		
R391	06T70072F53	1k ohm 1/4W		
R392	06S64995F45	470 ohm		
R501	06S64995F77	10k ohm		
R502	06S64995F77	10k ohm		
R503	06S64995F77	10k ohm		
R504	06S64996F26	1M ohm		
R505	06S64995F77	10k ohm		
R506	06S64995F77	10k ohm		
R508	06S64995F93	47k ohm		
R509	06S64995F93	47k ohm		
R510	06S64995F93	47k ohm		
R590	06S64995F93	47k ohm		
R601	06S64995F93	47k ohm		
R602	06S64995F93	47k ohm		
R603	06S64995F93	47k ohm		
R604	06S64996F10	220k ohm		
R605	06S64995F77	10k ohm		
R610	06S64995F69	4.7k ohm		
R615	06S64996F26	1M ohm		
R617	06S64995F77	10k ohm		
R619	06S64995F93	47k ohm		
R621	06S64995F77	10k ohm		
R622	06S64995F85	22k ohm		
R623	06S64995F77	10k ohm		
R625	06S64995F29	100 ohm		
R626	06S64995F93	47k ohm		
R630	06S64995F87	27k ohm		
R631	06S64996F26	1M ohm		
R801	06S64995F65	3.3k ohm		
R802	06S64995F65	3.3k ohm		
R803	06S64995F77	10k ohm		
R804	06S64995F77	10k ohm		
R805	06S64995F77	10k ohm		
R806	06S64995F77	10k ohm		
R807	06S64995F37	220 ohm		
R808	06S64995F81	15k ohm		
R809	06S64995F87	27k ohm		
R810	06S64995F69	4.7k ohm		
R815	06T70072F31	120 ohm 1/4W		
R819	06T70072F17	33 ohm 1/4W		
R821	06S64995F65	3.3k ohm		
R822	06S64995F77	10k ohm		
R824	06S64995F45	470 ohm		
R825	06T70072F29	100 ohm 1/4W		
R826	06T70072F29	100 ohm 1/4W		
R827	06T70072F29	100 ohm 1/4W		
R828	06S64995F53	1k ohm		
R829	06S64995F77	10k ohm		

Symbol No.	Part No.	Description		
R836	06S53330F57	1.5 ohm 1/8W		
R837	06S64995F77	10k ohm		
R838	06S64995F77	10k ohm		
R839	06S64995F85	22k ohm		
R840	06S64995F61	2.2k ohm		
R841	06S64995F29	100 ohm		
R842	06S64995F29	100 ohm		
R896	06T70072F04	8.2 ohm 1/4W		
R897	06T70072F07	12 ohm 1/4W		
R898	06S64995F65	3.3k ohm		
R899	06S53330F57	1.5 ohm 1/8W		
R901	06S64995F53	1k ohm		
R902	06S64995F85	22k ohm		
R903	06S64995F77	10k ohm		
R905	06S64995F77	10k ohm		
R906	06S64995F85	22k ohm		
R907	06S64996F02	100k ohm		
R908	06S64995F85	22k ohm		
R910	06S64995F61	2.2k ohm		
R911	06S64995F85	22k ohm		
R912	06S64995F85	22k ohm		
R913	06S64995F61	2.2k ohm		
R914	06S64995F77	10k ohm		
R916	06T70072F80	2.7 ohm 1/4W		
R918	06S64995F77	10k ohm		
R919	06S64995F69	4.7k ohm		
R921	06S64995F53	1k ohm		
R922	06S64995F77	10k ohm		
R923	06S64996F02	100k ohm		
R924	06S64996F02	100k ohm		
R925	06S64995F77	10k ohm		
R926	06S64995F77	10k ohm		
R999	06T73766F02	Block 47k ohm × 7		
VR1	18T42748F01	Variable, 100 ohm		
VR101	18T56963F03	Variable, 10k ohm (L)		
VR102	18T56963F03	Variable, 10k ohm (R)		
VR301-1	18T15759W01	Volume, Control (VOLUME, BALANCE, FADER, EJECT, POWER)		
VR301-2				
VR301-3				
VR301-5				
VR301-6				
S801				
S601				
VR310	18T60065F07	Variable, 1k ohm		

Symbol No.	Part No.	Description		
Front P. C. Board				
IC's				
IC315	51T93335F01	NJM5532M		
IC401	51T11037W01	BU4021BF		
IC405	51T74191F02	MB88306		
IC410	51T83905F01	LC7582		
Transistors				
Q401	48T73888F14	CP., FMA5		
Q402	48T73888F14	CP., FMA5		
Diodes/LEDs				
D401	48T90681F01	CP., MA110		
D402	48T90681F01	CP., MA110		
D403	48T90681F01	CP., MA110		
D404	48T90681F01	CP., MA110		
D405	48T90681F01	CP., MA110		
D410	48T52445F01	CP., MA151WA		
LD401	48T90476F02	LED, CP., BR1102W (RED)		
LD402	48T90476F02	LED, CP., BR1102W (RED)		
LD403	48T90476F02	LED, CP., BR1102W (RED)		
LD404	48T90476F02	LED, CP., BR1102W (RED)		
LD405	48T90476F02	LED, CP., BR1102W (RED)		
LD406	48T90476F02	LED, CP., BR1102W (RED)		
LD410	48T51833F03	BG4524K (GRN)		
LD411	48T51833F03	BG4524K (GRN)		
LD412	48T51833F03	BG4524K (GRN)		
Switches				
S401	40T10876W12	Tact (SKHLAJ) (TB)		
S402	40T10876W12	Tact (SKHLAJ) (TAPE)		
S403	40T10876W12	Tact (SKHLAJ) (DAP)		
S404	40T10876W12	Tact (SKHLAJ) (SEEK)		
S405	40T10876W12	Tact (SKHLAJ) (M1)		

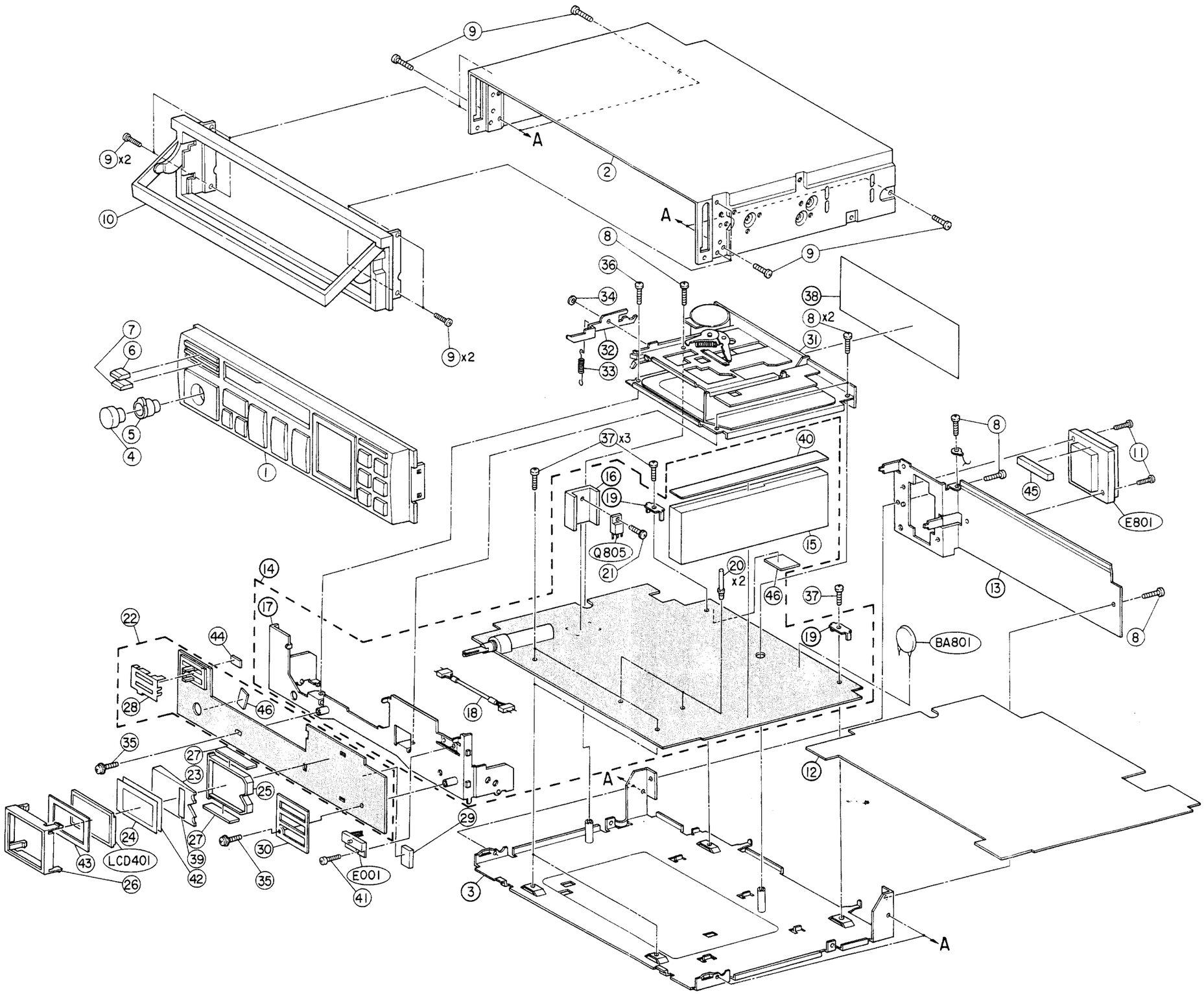
Symbol No.	Part No.	Description		
S406	40T10876W12	Tact (SKHLAJ) (M4)		
S407	40T10876W12	Tact (SKHLAJ) (M3)		
S408	40T10876W12	Tact (SKHLAJ) (M6)		
S409	40T10876W12	Tact (SKHLAJ) (MONO)		
S410	40T10876W12	Tact (SKHLAJ) (DX)		
S411	40T10876W12	Tact (SKHLAJ) (DISK)		
S412	40T10876W12	Tact (SKHLAJ) (DN)		
S413	40T10876W12	Tact (SKHLAJ) (UP)		
S414	40T10876W12	Tact (SKHLAJ) (M2)		
S415	40T10876W12	Tact (SKHLAJ) (M5)		
S420	40T10876W12	Tact (SKHLAJ) (RESET)		
Lamps				
PL401	65T95274F01	6V−70mA		
PL402	65T95274F01	6V−70mA		
PL403	65T95274F02	6V−70mA		
PL404	65T80297F05	6V−65mA		
PL405	65T95274F02	6V−70mA		
PL406	65T95274F02	6V−70mA		
Capacitors				
C335	08T90316F22	TF, 0.027 μF		
C336	08T90316F22	TF, 0.027 μF		
C337	08T90316F15	TF, 6800pF		
C338	08T90316F15	TF, 6800pF		
C339	08S65128F35	CP., 100pF		
C340	08S65128F35	CP., 100pF		
C341	08S65128F19	CP., 22pF		
C342	08S65128F19	CP., 22pF		
C401	08S65128F74	CP., 0.047 μF		
C405	23S57422F09	ELY., 10 μF/16V		
C406	23S57422F06	ELY., 2.2 μF/50V		
C407	08S65128F55	CP., 680pF		

Symbol No.	Part No.	Description		
Resistors (All resistors are chip 1/16W±5% unless otherwise noted.)				
R365	06S64995F77	10k ohm		
R366	06S64995F77	10k ohm		
R367	06S64995F77	10k ohm		
R368	06S64995F77	10k ohm		
R371	06S64995F53	1k ohm		
R372	06S64995F53	1k ohm		
R373	06S64995F53	1k ohm		
R374	06S64995F53	1k ohm		
R375	06S64996F26	1M ohm		
R376	06S64996F26	1M ohm		
R401	06S64995F93	47k ohm		
R402	06S64995F93	47k ohm		
R403	06S64995F93	47k ohm		
R404	06S64995F93	47k ohm		
R410	06S64995F77	10k ohm		
R411	06S64995F77	10k ohm		
R412	06S64996F02	100k ohm		
R413	06S64995F77	10k ohm		
R414	06S64995F33	150 ohm		
R415	06S64995F33	150 ohm		
R416	06S64995F33	150 ohm		
R417	06S64995F33	150 ohm		
R418	06S64995F33	150 ohm		
R419	06S64995F33	150 ohm		
R425	06S64996F22	680k ohm		
R426	06S64995F93	47k ohm		
R431	06T70072F35	180 ohm 1/4W		
R432	06T70072F37	220 ohm 1/4W		
R433	06T70072F37	220 ohm 1/4W		
R434	06T70072F37	220 ohm 1/4W		
R435	06T70072F41	330 ohm 1/4W		
R436	06T70072F45	470 ohm 1/4W		
VR401, LD413, LD414	18T93886F03	Volume, Slide 100k ohm B × 2 (TREBLE/BASS) (GRN)		
GR Audio P. C. Board				
IC/Diode				
IC1201	51T15146W01	TA7705P		
D1201	48T44813F01	MA165TA		
Capacitors				
C1201	23S61524F13	ELY., 10 μF/16V		
C1202	08S53332F29	CP., 330pF		
C1203	08S53332F29	CP., 330pF		
C1204	08S53332F29	CP., 330pF		
C1205	08S53332F29	CP., 330pF		

Symbol No.	Part No.	Description		
C1206	23S61524F07	ELY., 47 μ F/6.3V		
C1207	23S61524F07	ELY., 47 μ F/6.3V		
C1208	08T90316F18	TF, 0.012 μ F		
C1209	08T90316F18	TF, 0.012 μ F		
C1210	23S61524F18	ELY., 4.7 μ F/25V		
C1211	23S61524F18	ELY., 4.7 μ F/25V		
C1216	23S82482F02	ELY., 100 μ F/16V		
Resistors (All resistors are chip 1/16W±5% unless otherwise noted.)				
R1201	06S53330F29	100 ohm 1/8W		
R1202	06S53330F32	130 ohm 1/8W		
R1203	06S53330F32	130 ohm 1/8W		
R1204	06S64996F14	330k ohm		
R1205	06S64996F14	330k ohm		
R1208	06S64995F78	11k ohm		
R1209	06S64995F78	11k ohm		
R1210	06S64995F81	15k ohm		
R1211	06S64995F81	15k ohm		
R1212	06S64995F65	3.3k ohm		
R1213	06S64995F65	3.3k ohm		
GR Control P. C. Board				
IC/Transistors				
IC1501	51T63506F01	PU4124		
Q1501	48T62967F03	CP., DTC124K		
Q1502	48T62967F02	CP., DTC114K		
Q1503	48T62967F02	CP., DTC114K		
Q1504	48T62967F02	CP., DTC114K		
Q1507	48T52547F02	2SB793A		
Q1508	48T52438F03	2SD601A		
Q1509	48T52547F02	2SB793A		
Q1510	48T52547F02	2SB793A		
Q1511	48T93828F03	2SD1994A		
Q1512	48T93828F03	2SD1994A		
Diodes				
D1501	48T44813F01	MA165TA		
D1502	48C40235G02	10E2		
D1503	48T44813F01	MA165TA		
D1504	48T44813F01	MA165TA		
ZD1501	48T68697F43	Zener, HZS11EB2		

Symbol No.	Part No.	Description		
Capacitors				
C1501	23S82482F02	ELY., 100 μ F/16V		
Resistors (All resistors are chip 1/8W±5% unless otherwise noted.)				
R1501	06S81094F01	M.F., 2.2 ohm 1/2W		
R1502	06S53330F77	10k ohm		
R1503	06S53330F84	20k ohm		
R1505	06S53330F77	10k ohm		
R1506	06S53330F77	10k ohm		
R1507	06T67581F32	C.F., 1k ohm 1/2W		
R1508	06T67581F32	C.F., 1k ohm 1/2W		
R1509	06T67581F32	C.F., 1k ohm 1/2W		
R1510	06T67581F32	C.F., 1k ohm 1/2W		
R1511	06S53330F77	10k ohm		
R1512	06S53330F77	10k ohm		
R1513	06S53330F84	20k ohm		
R1514	06S53330F77	10k ohm		
R1515	06S53330F77	10k ohm		
R1516	06S53330F77	10k ohm		
R1517	06S53330F77	10k ohm		
R1518	06S53330F77	10k ohm		
R1519	06T70072F53	1k ohm 1/4W		
R1520	06S53330F94	51k ohm		
R1521	06S53330F89	33k ohm		
R1522	06T70072F53	1k ohm 1/4W		
Miscellaneous				
BA801	60T91060F03	Battery, CR2032-V03		
E1	01T15754W01	Assy., Remote Control RC		
E801	01T15757W01	Assy., QRB Connector		
HD101	88T15971W01	Head, playback		
LCD401	65T15753W01	LCD, LU1479		
M501	01V11500W64	Assy., Motor		
PT501	51T15144W01	Sensor, Photo		
Q805	48T82308F01	TR., 2SD1761		
S501	40T15222W01	Switch, Detector (Pack In)		
S502	40T15382W01	Switch, Detector (Pack Down)		
S503	40T15382W01	Switch, Detector (Metal)		
SD501	01T10369W01	Assy., Eject Solenoid		
SD502	01T15249W01	Assy., Play Solenoid		
SD503	01T10371W01	Assy., R/F Solenoid		

Exploded View (Cabinet)



A | B | C | D | E | F | G | H

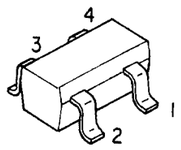
Cabinet Assembly Parts List

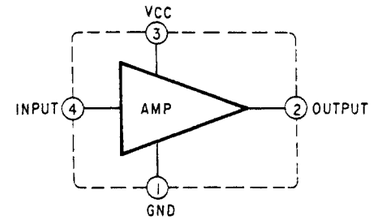
Symbol No.	Index	Part No.	Description
1	3-B	13D11976W05	Assy., Nosepiece
2	2-D	15C11101W02	Cover, Top
4	3-B	36A94114F01	Knob, Control (Front)
5	3-B	36A94115F01	Knob, Control (Back)
6	3-B	36B94116F01	Knob, Slide
7	3-B	36B94116F02	Knob, Slide
8		03S44205G07	Screw, Pan (M2.6 × 5)
9		03S44205G34	Screw, Pan (M2.6 × 5)
10	2-B	07C10065W01	Assy., Handle Bracket
11	3-G	03S44205G29	Screw, Pan (M2.6 × 6)
15	3-E	77B80466F01	Tuner, MB4E701O
18	4-C	01T15909W01	Assy., Connector Shield
20	3-E	09T84840F01	Lug, Style (18mm)
21	3-D	03D40014G49	Screw, W/Washer (M3 × 8)
22	4-B	01V14200W69	Assy., Front P.C.B.
23	4-B	61A11990W01	Lens, LCD
24	5-B	26A11991W01	Refrector, Sheet
25	4-B	15A11988W01	Case, LCD
26	5-A	15B11989W01	Cover, LCD
27		75T16097W02	Rubber, Electric
28	4-B	07A94609F01	Bracket, Shield
29	5-C	75S72374F48	Cushion (R)
30	5-C	15B12392W01	Cover, LED
31	2-E	81D12728W01	Cassette, Deck (GR75E020)
33	2-D	41A840€2F01	Spring, Lever
34	2-D	04A41345P22	Washer, Lock (M2.6)
35		03C42723U08	Screw, Cup (M3 × 5.5)
36	2-D	03S71677F06	Screw, W/Washer (M2.6 × 6)
37		03S44205G48	Screw, Pan (M2.6 × 5)
39	5-B	14S94461F59	Insulator, Cover
40	3-E	14S96390F55	Insulator, Cover
41	5-C	03S44205G30	Screw, Pan (M2.6 × 4)
42	5-B	26A11991W02	Reflector, Sheet
43	5-B	14A13511W01	Insulator, Sheet
44	4-B	75S62361F94	Cushion, Rubber
45	3-F	75A82934F01	Cushion
46		14S71058F23	Insulator, Cover

NOTE : The parts without part numbers are not supplied.

Semi-Conductor Lead Identifications

μ PC1675G : IC1





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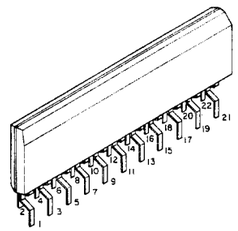
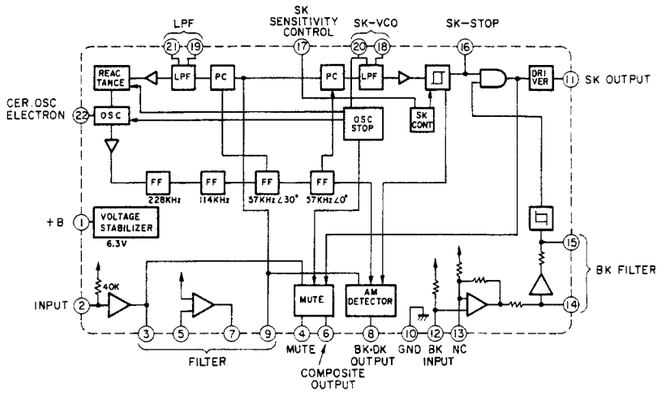
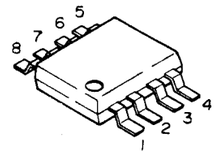
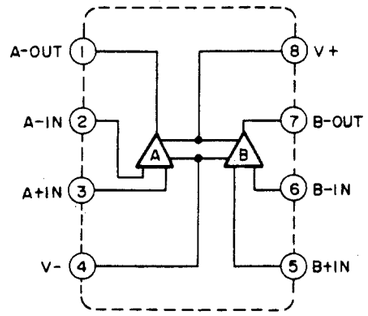


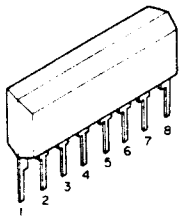


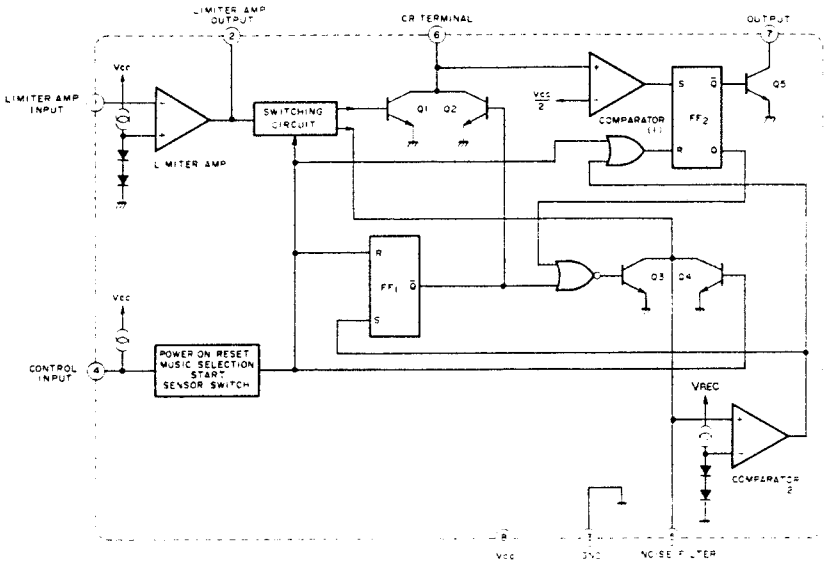
NJM4560M : IC6
NJM5532M : IC315





M51143AL : IC101





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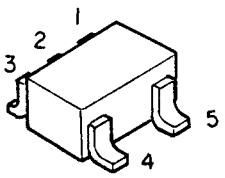

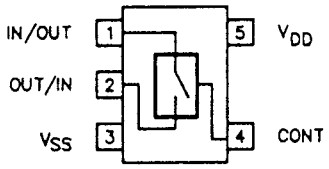

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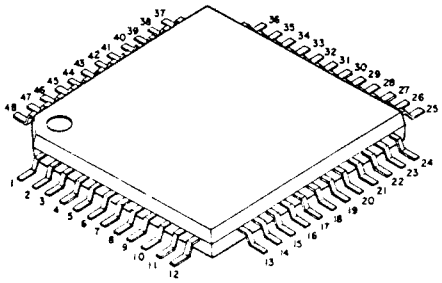

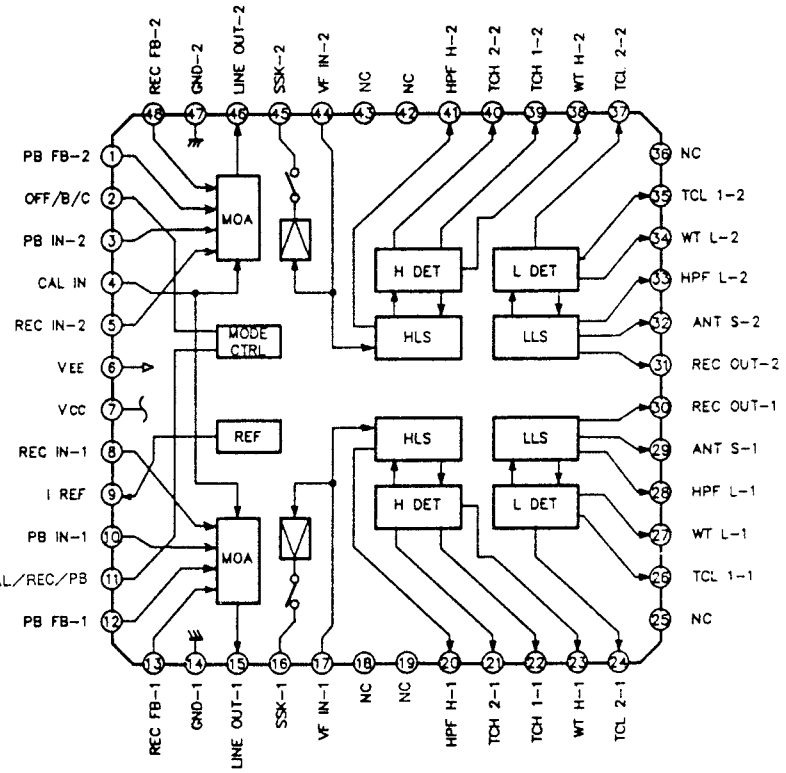

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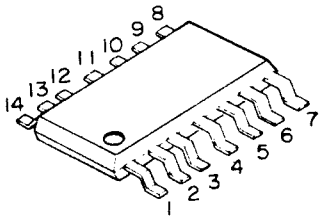

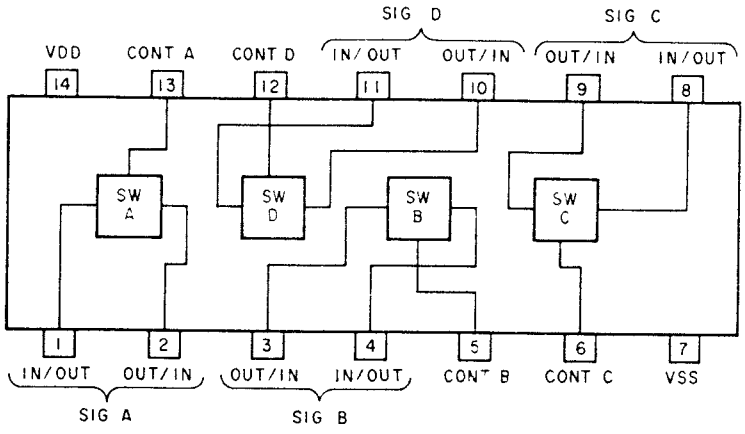

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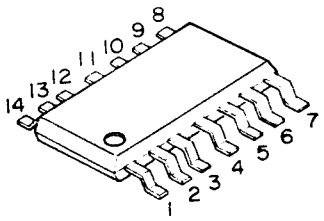

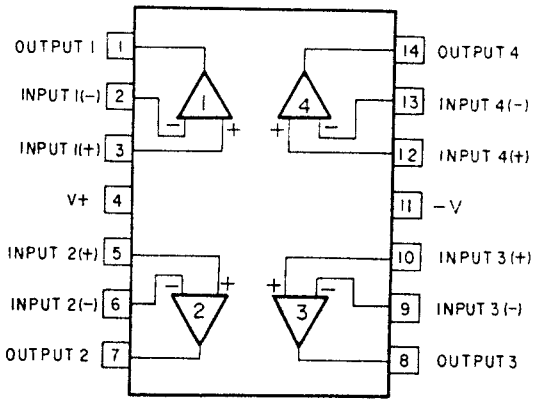

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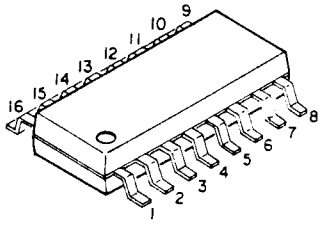

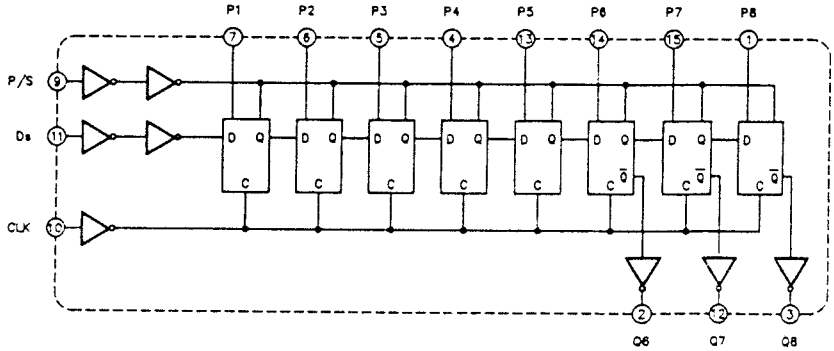

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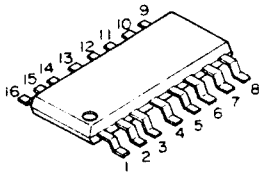

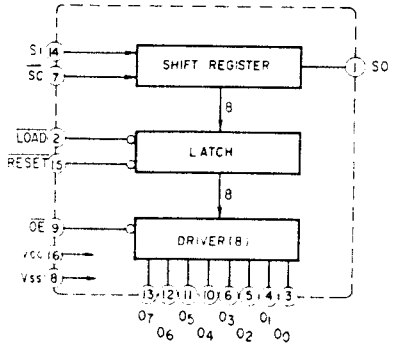

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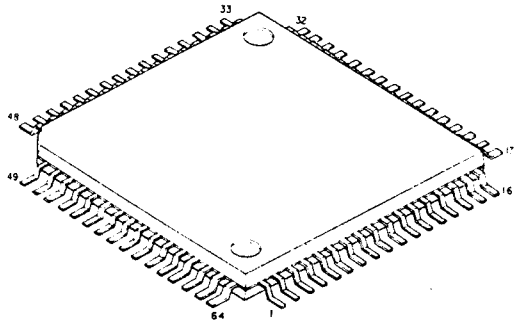

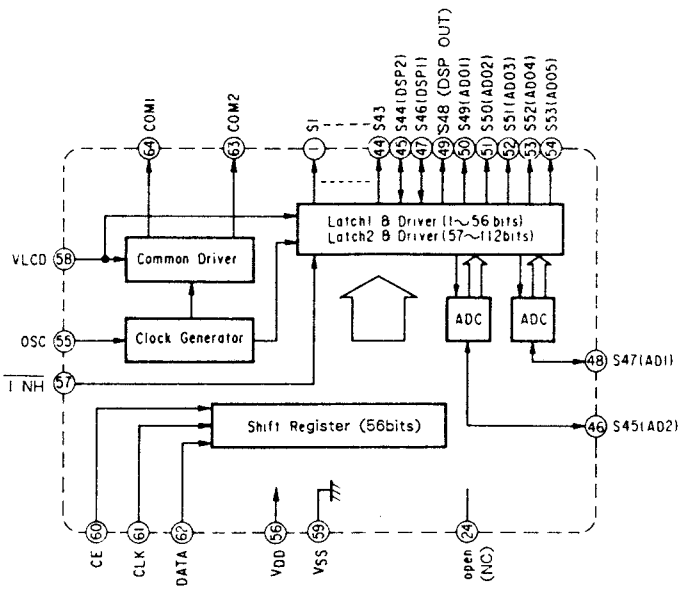

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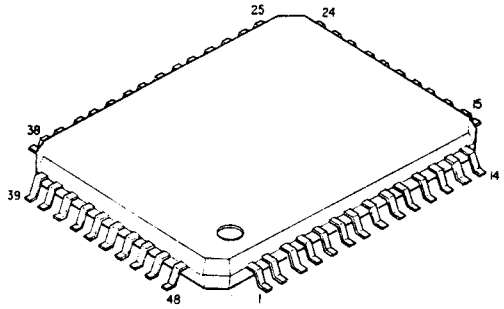

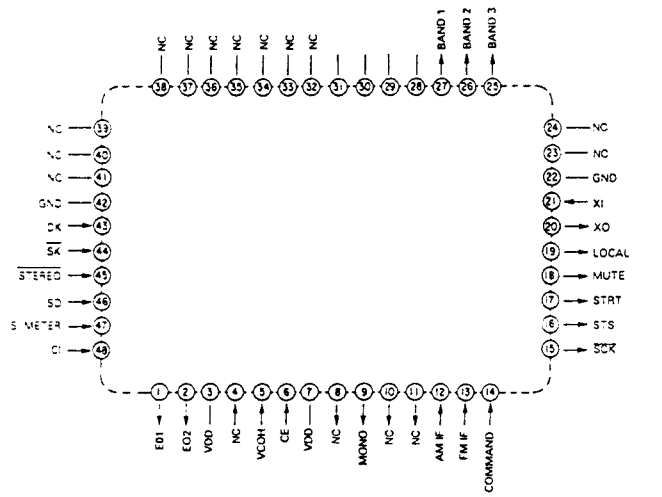

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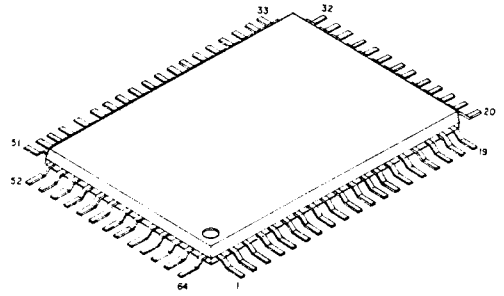

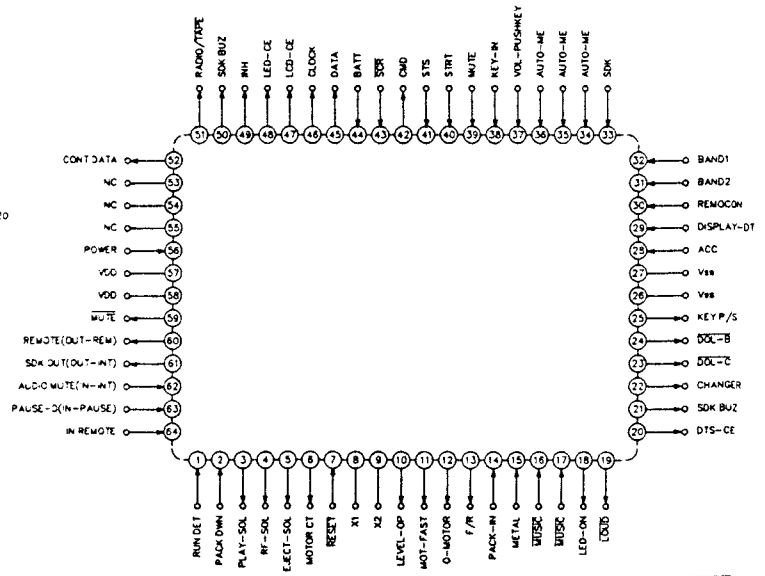

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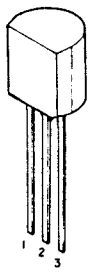

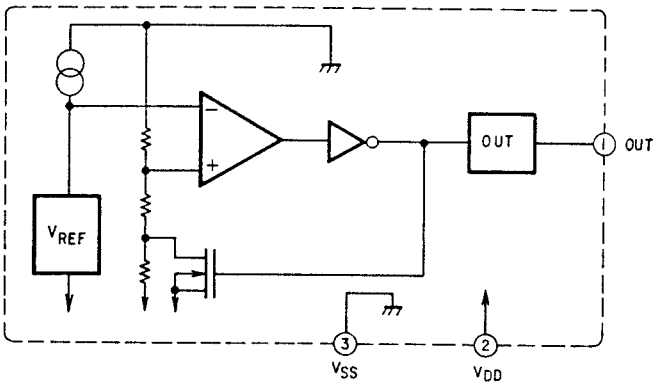

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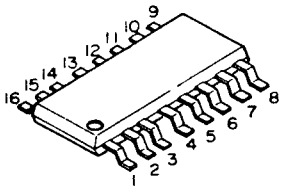

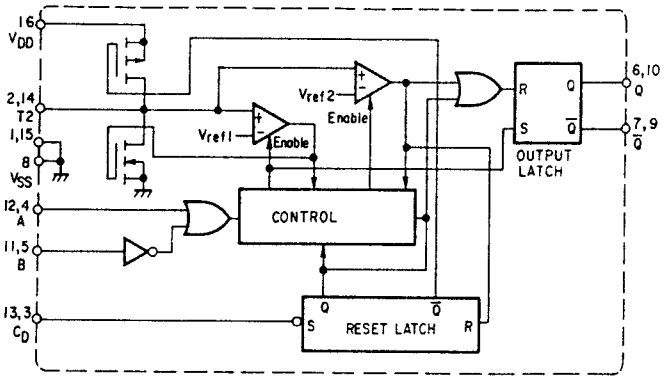

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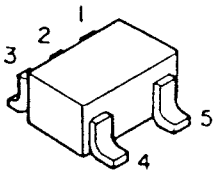

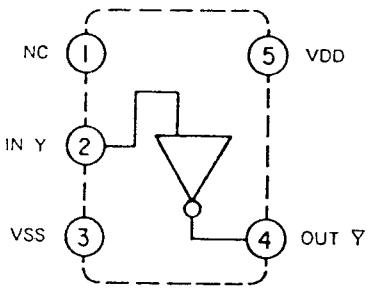

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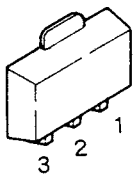

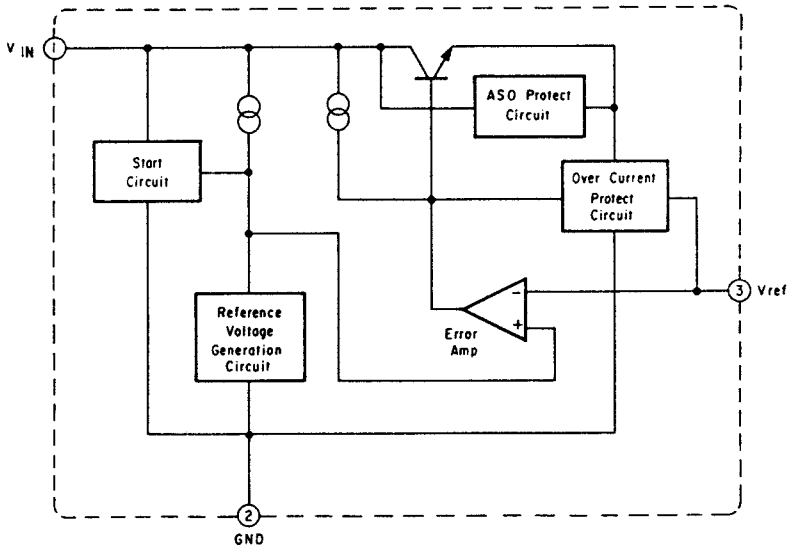

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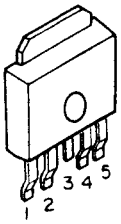

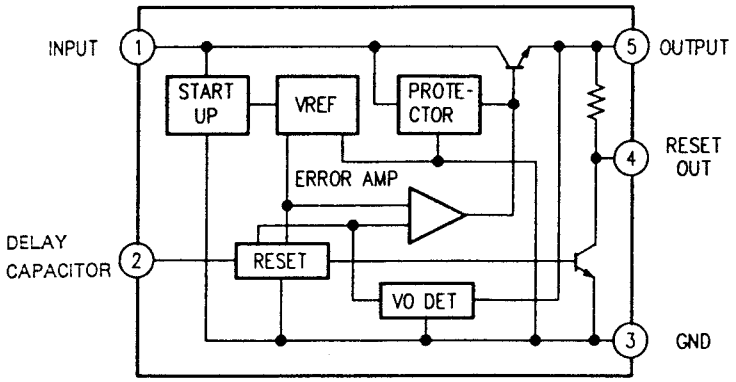

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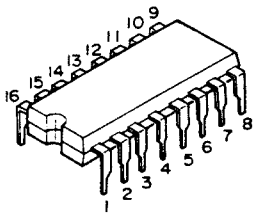

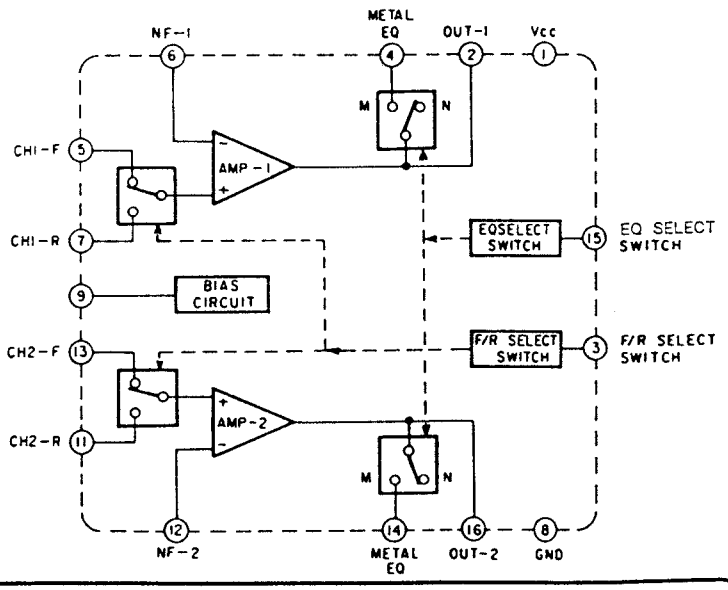

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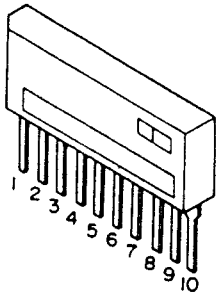
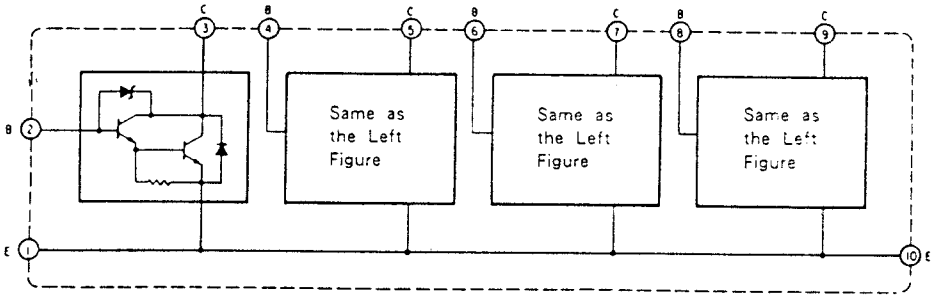
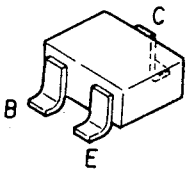
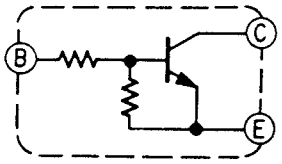




DTC124EU : Q1, 4, 5, 14, 21, 101, 201, 202, 203, 204, 601, Q902, 904, 915, 917, 918, 920
DTC124K : Q811, 814
DTC114YK : Q817
DTC114EU : Q906
DTC124K : Q1501
DTC114K : Q1502, 1503, 1504





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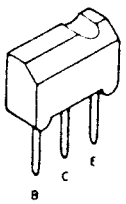

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2SA1576 : Q916
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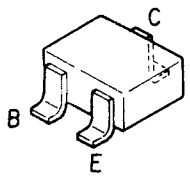
2SD601A : Q1508



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2SB1237 : Q801, 806, 919
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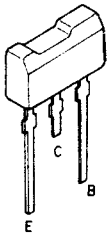

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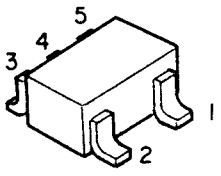
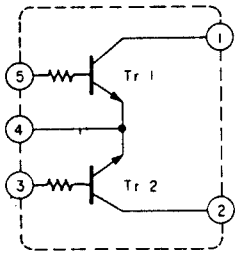
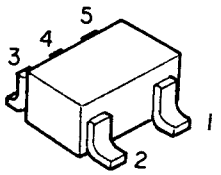


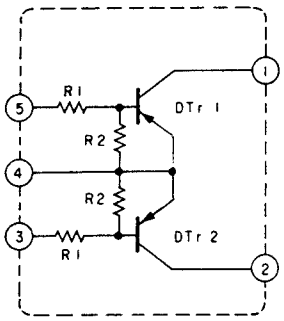
1. Collector
2. Collector
3. Base
4. Emitter
5. Base



FMA5 : Q401, 402



1. Collector
2. Collector
3. Base
4. Emitter
5. Base



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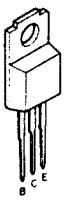

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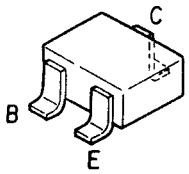

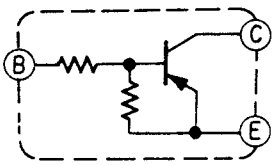

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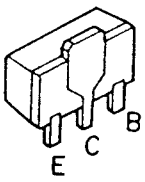

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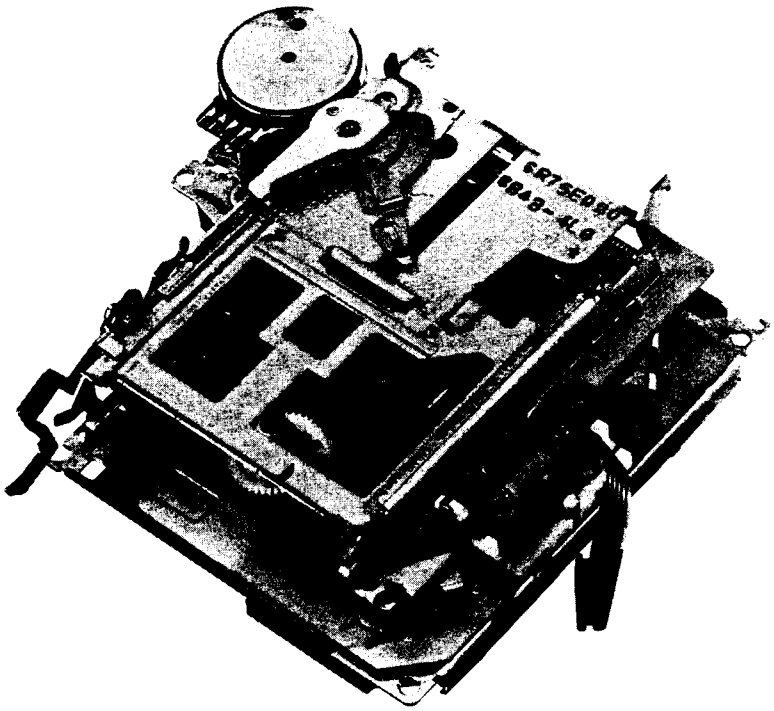
ALPINE SERVICE MANUAL

Exploded View & Parts List
For
Cassette Deck Mechanism

ADDENDUM & REVISED



GR SERIES

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List of Usable Lock Washers

	SIZE	PARTS NO.	QUANTITY
1	(M1.2 x 3.5 x 0.25)	04A41345P01	8
2	(M1.7 x 3.5 x 0.25)	04A41345P02	1
3	(M2.1 x 5 x 0.25)	04A41345P06	1
4	(M1.2 x 2.5 x 0.25)	04A41345P11	8
5	(M1.7 x 3.5 x 0.35)	04A41345P12	2
6	(M1.2 x 3.5 x 0.35)	04A41345P15	1
7	(M1 x 2.5 x 0.25)	04A41345P17	1
8	(M2.6 x 5 x 0.25)	04A41345P29	1
9	(M3.1 x 8 x 0.05)	04A41345P30	1
10	(M1.7 x 3 x 0.25)	04A41345P31	1
11	(M3.1 x 5 x 0.35)	04A41345P32	2

List of Usable Oil

1) Molykote E paste
2) Grease EM-30L
3) Grease FLOIL 425A

List of Usable Jigs

1) GR bottom gear jig (Part No. 44A20788W01)
2) Head height adjustment gauge
   (M-300 or AT-500)

Memo

Disassembly, Assembly and Replacement of Functional Parts

1. Disassembly and Assembly of Bottom Cover

(1) Turn the mechanism around as shown in Figure 1.
(2) Remove M1 lock washer ① as shown in Figure 1.
(3) Remove three screws ② as shown in Figure 1.
(4) Lift the bottom cover slowly from the position Ⓐ-1, pull the hooks out of the holes in the chassis, and remove the bottom cover as shown in Figure 1.
(5) When remounting the bottom cover, first turn the front of the mechanism up as shown in Figure 2.
(6) Slide the slider in the direction Ⓐ-2 as shown in Figure 2.
(7) Push down the cassette holder in the direction Ⓐ-3 as shown in Figure 2.
(8) Pull the door pin in the direction Ⓐ-4 so that the mechanism is locked in as shown in Figure 2.
(9) Turn the mechanism around as shown in Figure 3.
(10) Pull the automatic metal lever in the direction Ⓐ-5 and the RF solenoid chip in the direction Ⓐ-6 as shown in Figure 3.
(11) Insert the hooks of the bottom cover into the chassis in the direction Ⓐ-7, and then join the part Ⓐ-8 of the bottom cover to the chassis slowly, making sure that the 3 points indicated with the straight lines in the Figure 3 are fitted properly.
If there are troubles in mounting the bottom cover, do not apply force but remove the bottom cover once again and check the positions of the individual parts. (Refer to Figure 3.)
(12) Since the hooks marked Ⓐ-8 will be lifted slightly as shown in Figure 4, insert the jig through the hole Ⓐ-9, and fix it turning the jig slightly.
Instead of operation (12), turn the gear nose slowly with a precision screwdriver etc., taking care not to damage it.
After 2 to 3 turns, it will click into place.
(Refer to Figure 4 and 5.)
(13) Fix the screws and the lock washer that have been removed.

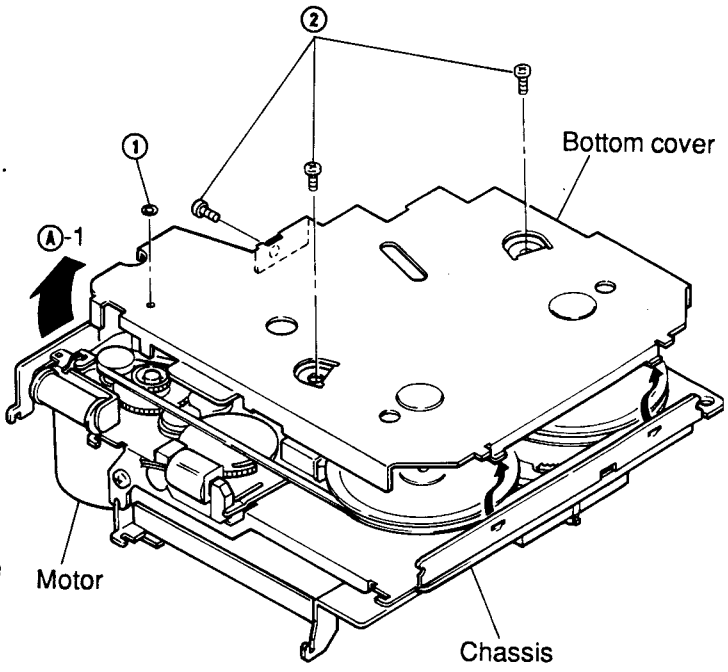


Figure 1

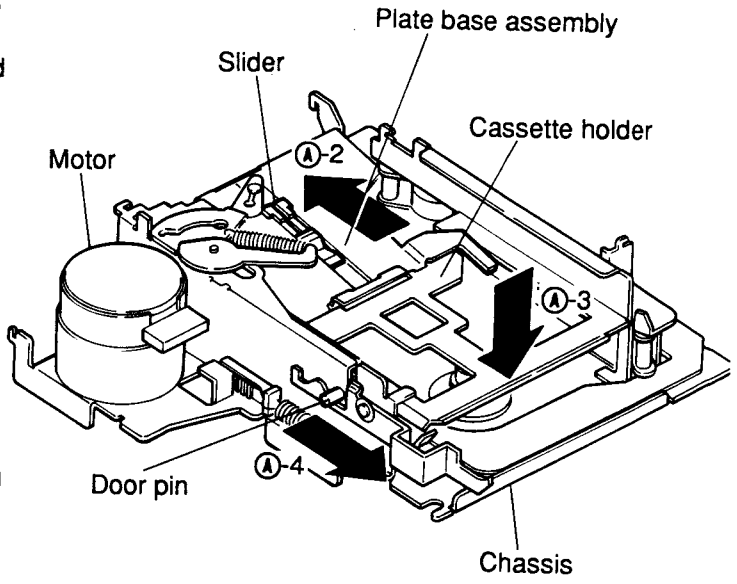


Figure 2

(14) Insert the jig into the hole Ⓐ-9 as shown in Figure and rotate the eject solenoid counterclockwise about 20 times, pulling it in the direction Ⓐ-10 with the finger.
Then the eject operation is completed.
Instead of operation (14), the eject operation can be performed by mounting the mechanism to the product. (Refer to Figures 4 and 5.)

Note: Do not reuse the used lock washers for mounting.
When turning the mechanism, be careful not to drop the gear and the flywheel.
Fasten the three screws with a fastening torque of 6 kg/cm.

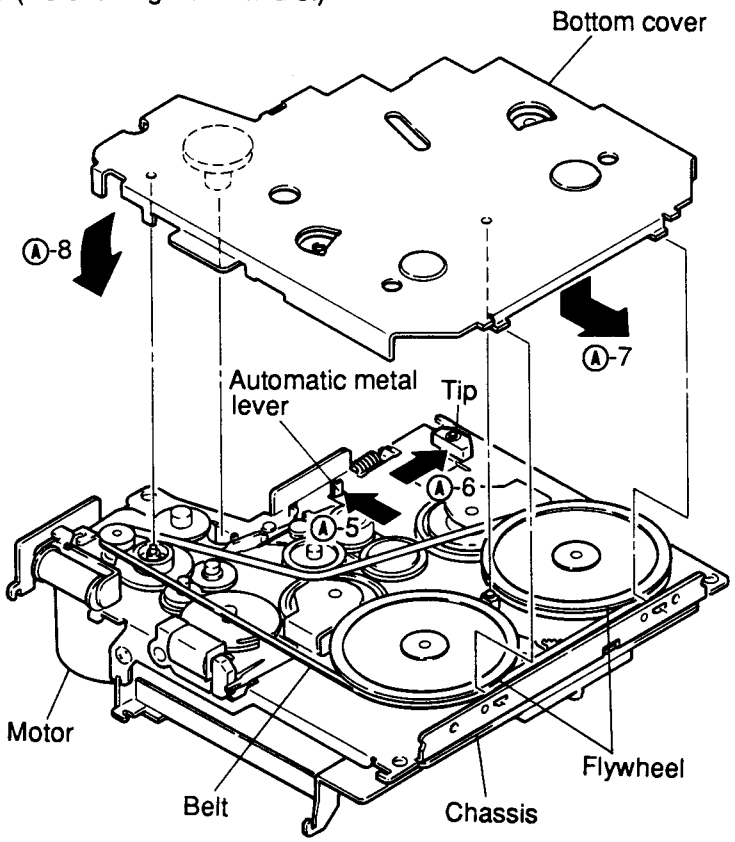


Figure 3

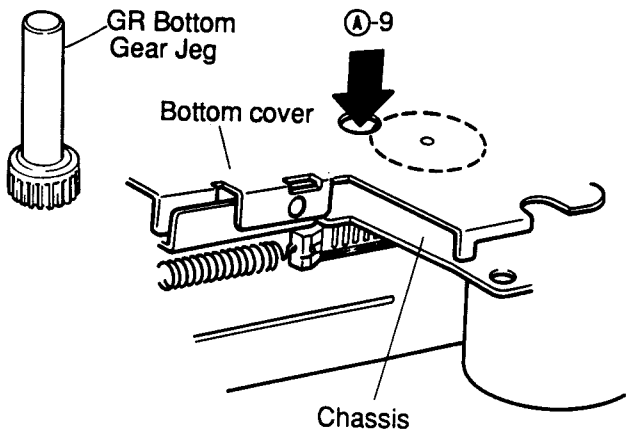


Figure 4

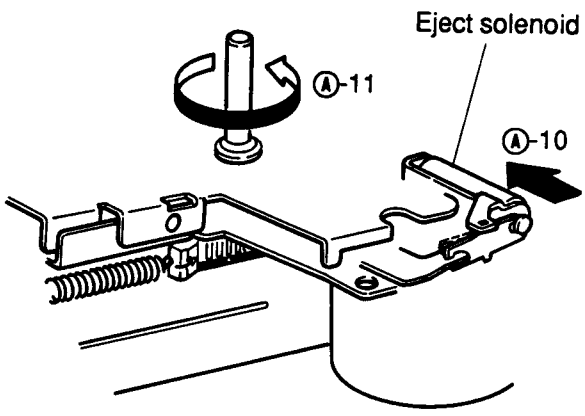


Figure 5

2. Replacement of the bottom cover mounting parts

a. Replacement of the eject gear
(1) Remove M1.2 lock washer ③ as shown in Figure 6.
(2) Pull the eject pinion out of the eject gear and remove the eject gear as shown in Figure 6.
(3) Apply the molykote E paste to the section ⑧-1, and mount the eject gear following the removal steps in the reverse order. After replacement is finished, make sure that the gear rotates smoothly. (Refer to Figure 6.)

Note: Do not reuse the used lock washers for remounting.
Take care to avoid damage by piercing and tearing.

b. Replacement of the RF solenoid
(1) Remove two solders ④ and remove the RF solenoid from the bottom cover by pulling it up as shown in Figure 6.
(2) Replace the solenoid with a new one, and remount it following the removal steps in the reverse order as shown in Figure 6.

Note: When removing solder ④, set the temperature of the soldering iron to 350° +/– 10° and the soldering time to 1 – 3 seconds. Take care that the solder is not loose, that there is no shortcircuit and that the coating is not damaged.

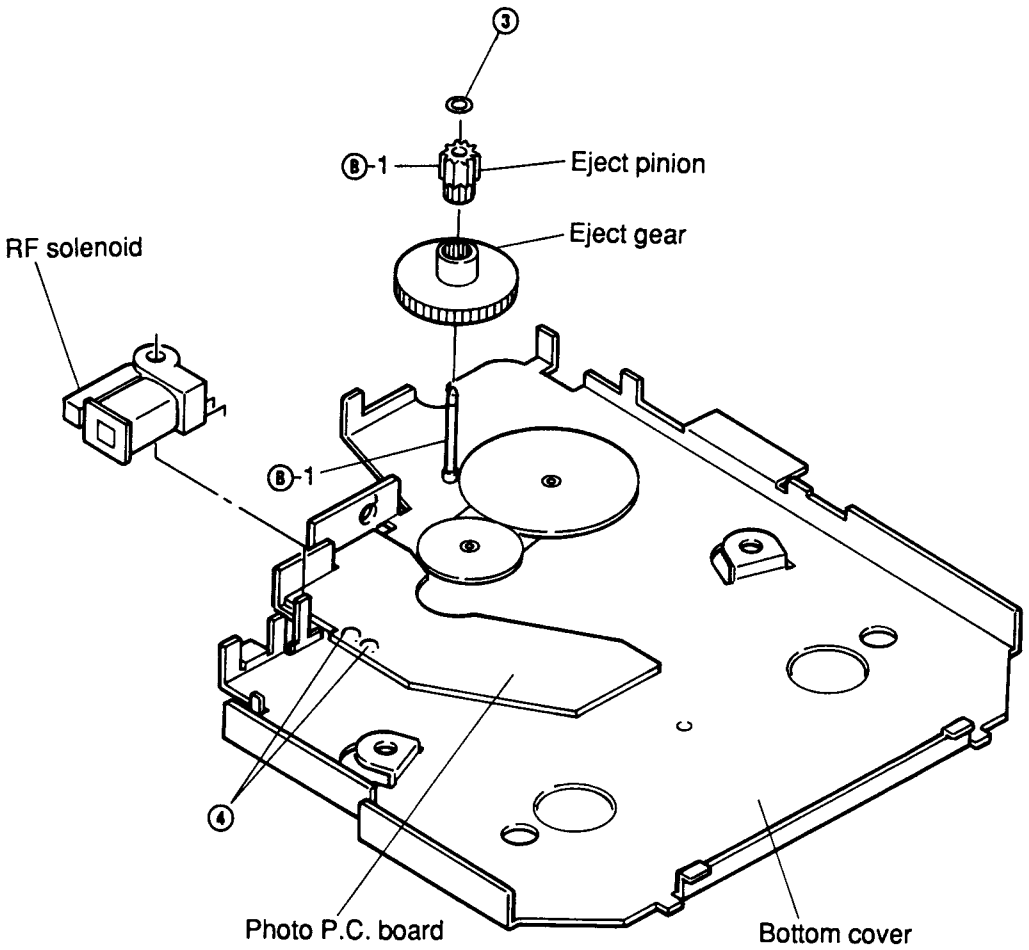


Figure 6

c. Replacement of the photo sensor
(1) Remove four solders ⑤ as shown in Figure 7.
(2) Remove the photo guide together with the photo sensor from the photo PC board as shown in Figure 7.
(3) Insert the new photo sensor into the photo guide, and bend the legs of the photo sensor in the direction marked ⑧-2 as shown in Figure 7.
(4) Insert the photo guide into the PC board and solder the legs so that the photo sensor is set as indicated by [ ] in Figure 7.

Note: When using the soldering iron, set the temperature of the soldering iron to 350° +/– 10° and the soldering time to 1 – 3 seconds. Take care that the solder is not loose, that there is no shortcircuit and that the coating is not damaged. Also take care that the photo guide is properly fixed and straight.

d. Replacement of the detector switch
(Automatic metal packing ???)
(1) Remove 2 solders ⑥ with which the the switch is fixed as shown in Figure 7.
(2) Prepare the terminals of the switch of the new solder as shown in Figure 8.
(3) After that, insert the switch into the photo PC board, and solder the terminals.

Note: When using the soldering iron, refer to Item 2-C to make sure that the temperature of the soldering iron and the soldering time are proper. Also take care that the switch guide is properly fixed and straight.

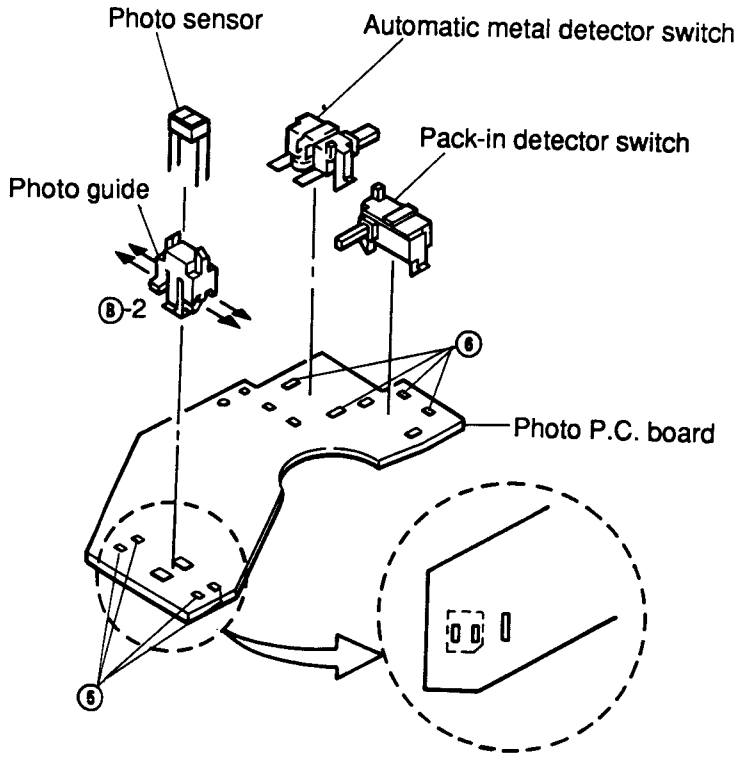


Figure 7

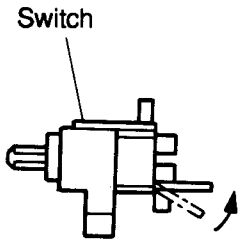


Figure 8

3. Replacement of the mounting parts on the rear of the main chassis

a. Replacement of the belt

(1) After removing the bottom cover, remove the belt.
(2) Clean the new belt with absolute alcohol, and fix it as shown in Figure 9.

Note: When fixing the belt, make sure that it is not twisted or dirty. When removing the belt, do not turn up the front of the chassis.

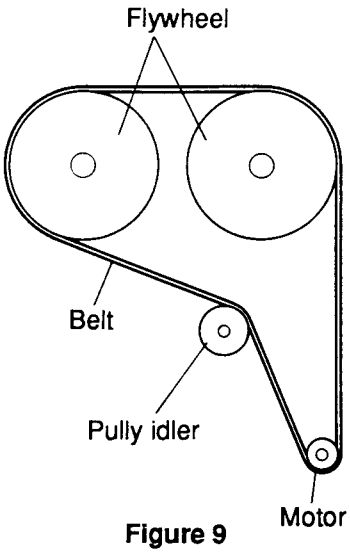


Figure 9

b. Replacement of the motor

(1) After removing the belt, remove spring ⑦ as shown in Figure 10.
(2) Remove solder ⑧-1, and remove the parallel wire (5P) from the control PC board as shown in Figure 11.
(3) Remove two screws ⑨ and ⑩, and remove the motor, taking care not to damage the motor idler gear. (Refer to Figure 10.)
(4) Mount the new motor following the removal steps in the reverse order.

Note: Refer to Item 2-C to make sure that the temperature of the soldering iron and the soldering time are proper. Since the parallel wire is very easily damaged, handle it with care.
Fasten the two screws with a fastening torque of 3 kg.cm.

*When inserting the clutch spring, be careful of the inserting direction as shown in the Figure.

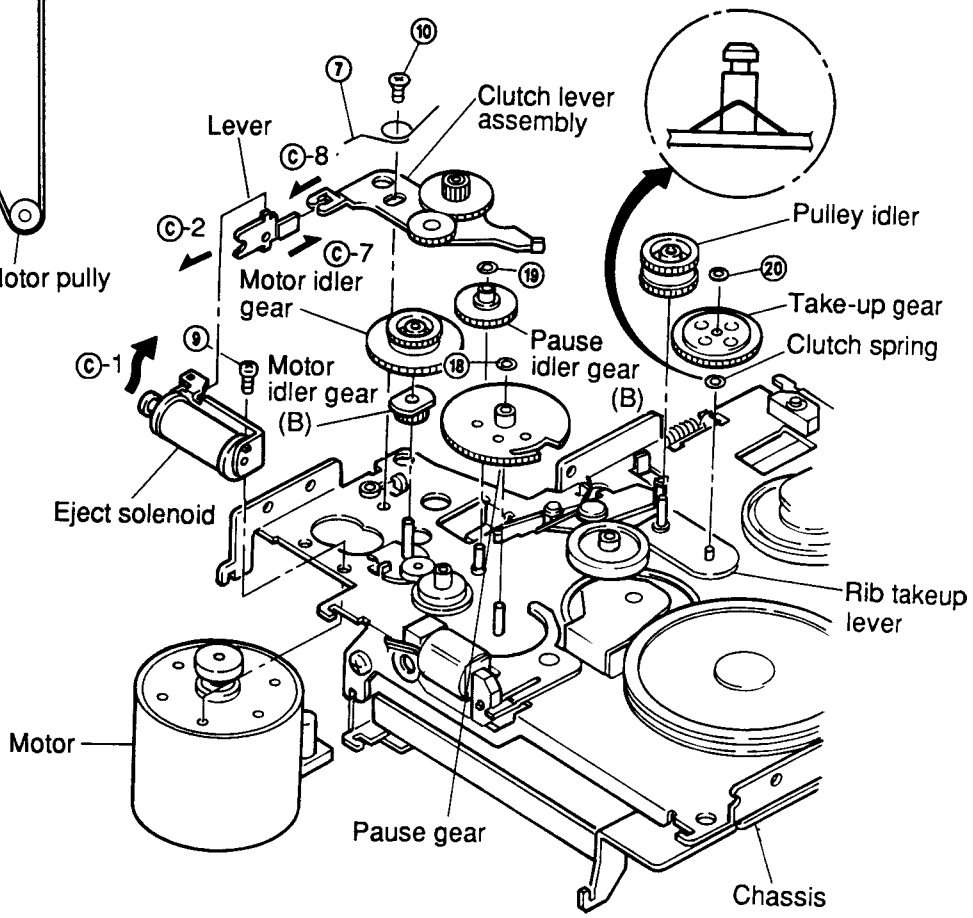


Figure 10

c. Replacement of the flywheels
(1) After removing the belt, pull out the two flywheels. Take care not to loose the polyslider washer ⑪ located between the flywheel and the chassis. (Refer to Figure 12.)
(2) Fix the polyslider washer to the new flywheel and mount the flywheel to the chassis.

d. Replacement of the play solenoid
(1) Remove the two solders ⑧-2 as shown in Figure 11.
(2) Remove one screw ⑫ and remove the solenoid as shown in Figure 11.
(3) Mount the new solenoid following the removal steps in the reverse order.

Note: Refer to Item 2-C to make sure that the temperature of the soldering iron and the soldering time are proper. Fasten the screws with a fastening torque of 2.3 kg.cm.

e. Replacement of the eject solenoid
(1) Remove two solders ⑧-3. Take care not to loose the tube that protects the wire. (Refer to Figure 11.)
(2) Remove screw ⑨ and remove the play solenoid as shown in Figure 10.
(3) Align position ⓒ-1 of the new solenoid with position ⓒ-2 of the lever and fasten the screws as shown in Figure 10.
(4) Lead the wire through the tube and solder it.

Note: Refer to Item 2-C to make sure that the temperature of the soldering iron and the soldering time are proper. Fasten the screws with a fastening torque of 3 kg.cm. As the solder wires are not insulated, do not let them cross each other.

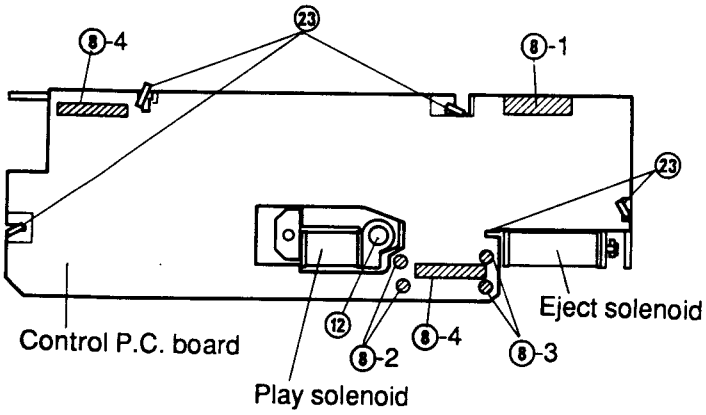


Figure 11

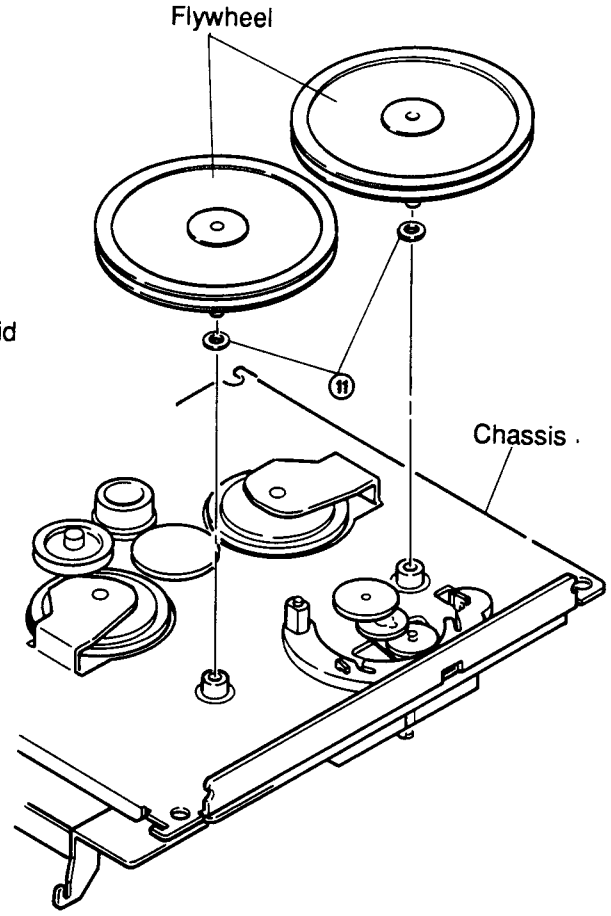


Figure 12

f. Replacement of gears

(f-1) Replacement of the reverse idler gear

(1) Remove M1.2 lock washer ⑬, pull it up from the stud of the chassis and remove the gear as shown in Figure 13.

(2) Remount following the removal steps in the reverse order.

(f-2) Replacement of the sun gear

(1) Remove M1.2 lock washer ⑭, pull it up from the stud of the chassis and remove the gear as shown in Figure 13.

(2) Mount it, following the removal steps in the reverse order.

(f-3) Replacement of the fixing gear

(1) Adjust the two mounting claws for the fix gear on the chassis ⑮ and remove the section Ⓒ-3 of the gear by pulling it up in the direction of the arrow shown in Figure 13.

(2) Insert the section Ⓒ-4 of the new gear into the chassis, and mount it following the removal steps in the reverse order as shown in Figure 13.

(f-4) Replacement of the reverse lever assembly and planet gear

(1) Remove both the fixing gear and the sun gear and remove the reverse lever assembly as shown in Figure 13.

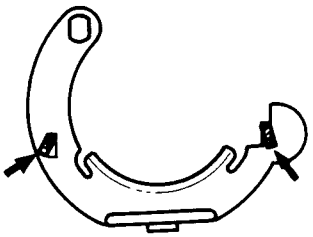
(2) Remove M1.7 lock washer ⑯ and remove the planet gear as shown in Figure 14.

(3) Mount the new planet gear and reverse lever following the removal steps in the reverse order.

Notes on f-1 through f-4:

After mounting all parts, check if the reverse lever assembly moves in the directions marked Ⓒ-5 when the reverse gear is turned clockwise and counterclockwise.

*After mounting the fixing gear, bend them into the form of as shown in the Figure.



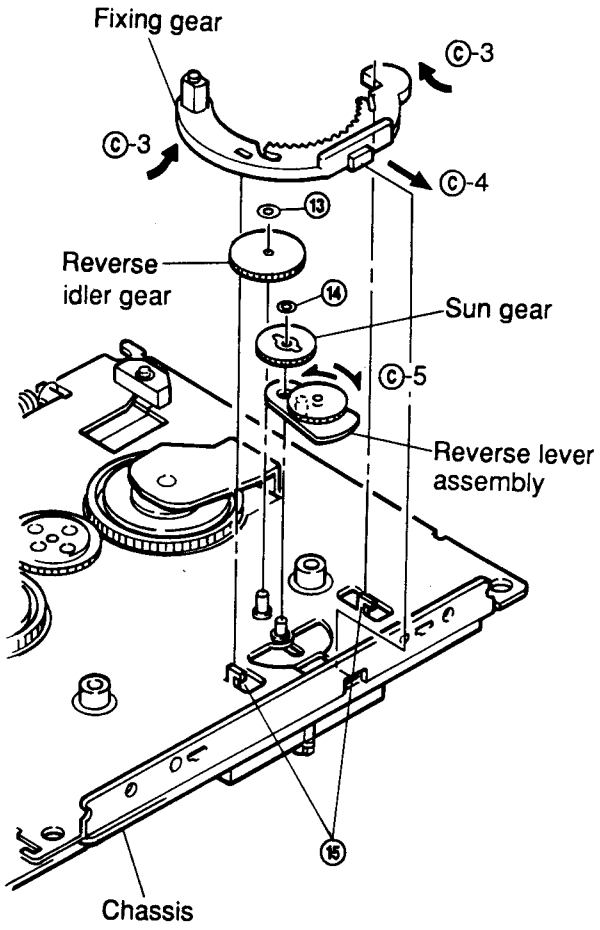


Figure 13

(f-5) Replacement of the clutch lever assembly and eject idler gear
(1) After removing the motor, remove the motor idler gear and the motor idler gear (B) and remove the clutch lever assembly as shown in Figure 10.
(2) Remove M1.2 lock washer ⑰ and remove the eject idler gear as shown in Figure 15.
(3) Mount the new gears and clutch lever following the removal steps in the reverse order.

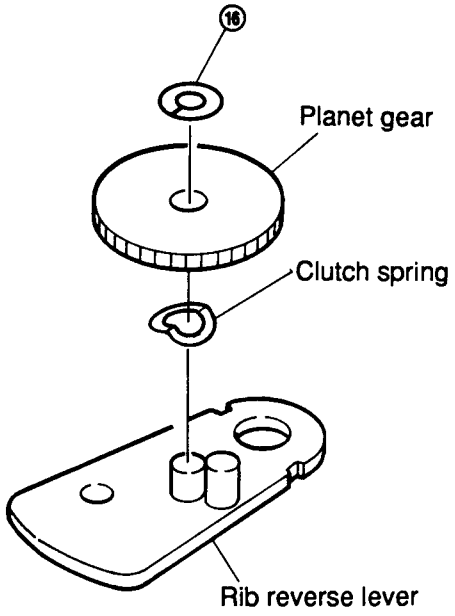
Note: When mounting the gears to the lever, apply grease (FLOIL 425A) to the position Ⓒ-6 as shown in Figure 15. Align the position Ⓒ-7 with the position Ⓒ-8 and mount the clutch lever as shown in Figure 10.

(f-6) Replacement of the pause gear
(1) Remove M1.2 lock washer ⑱ and remove the pause gear pulling it up from the stud of the chassis as shown in Figure 10.
(2) Mount the new gear following the removal steps in the reverse order.

(f-7) Replacement of the pause idler gear (B)
(1) After removing the motor and the motor idler gear, remove M1.2 lock washer ⑲ and remove the gear by pulling it up from the stud of the chassis as shown in Figure 10.
(2) Mount the new gear by following the removal steps in the reverse order.

(f-8) Replacement of the take-up gear
(1) After removing the belt and the pulley idler gear, remove M1.2 lock washer ⑳ by pulling it up from the stud of the rib take-up lever assembly as shown in Figure 10.
(2) Remount the take-up gear following the removal steps in the reverse order.

Notes on f:
Do not reuse the used washers. Take care to avoid damage by piercing and tearing.



[Disassembly Reverse Lever Assembly]

Figure 14

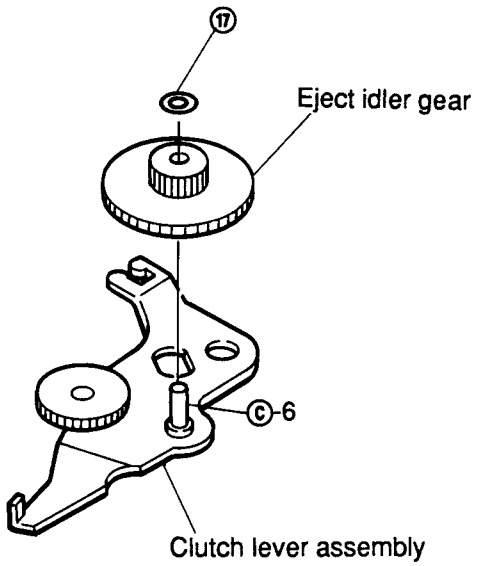


Figure 15

4. Replacement of the parts mounted on the front of the chassis

a. Replacement of the audio PC board
(1) Remove two solders ㉑ and remove the parallel wire (7P) and the head PC board as shown in Figure 16.
(2) Adjust the two claws ㉒ to the rectangular holes on the PC board and remove the PC board as shown in Figure 16.
(3) After replacement, mount the new PC board following the removal steps in the reverse order.

Note: The head PC board and the parallel wires are easily damaged. Handle them with care. Refer to Item 2-C to make sure that the temperature of the soldering iron and the soldering time are proper. Do not bring the soldering iron near the head PC board.

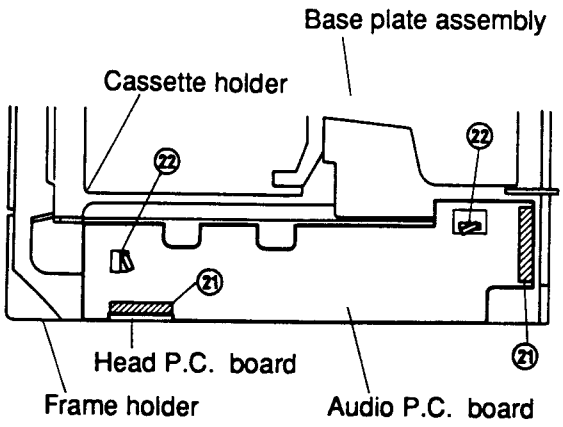


Figure 16

b. Replacement of the control PC board
(1) Remove seven solders ⑧ and remove the three parallel wires and the wires of the eject solenoid and of the play solenoid as shown in Figure 11.
(2) Remove the claws ㉓ and remove the PC board as shown in Figure 11.
(3) After replacing the old PC board with a new one, mount it following the removal steps in the reverse order.

Note: As mentioned in Item 4-a, handle the parallel wires carefully, and be sure that the temperature of the soldering iron and the soldering time are proper. As the wires of the eject solenoid are not insulated, do not let them cross each other.

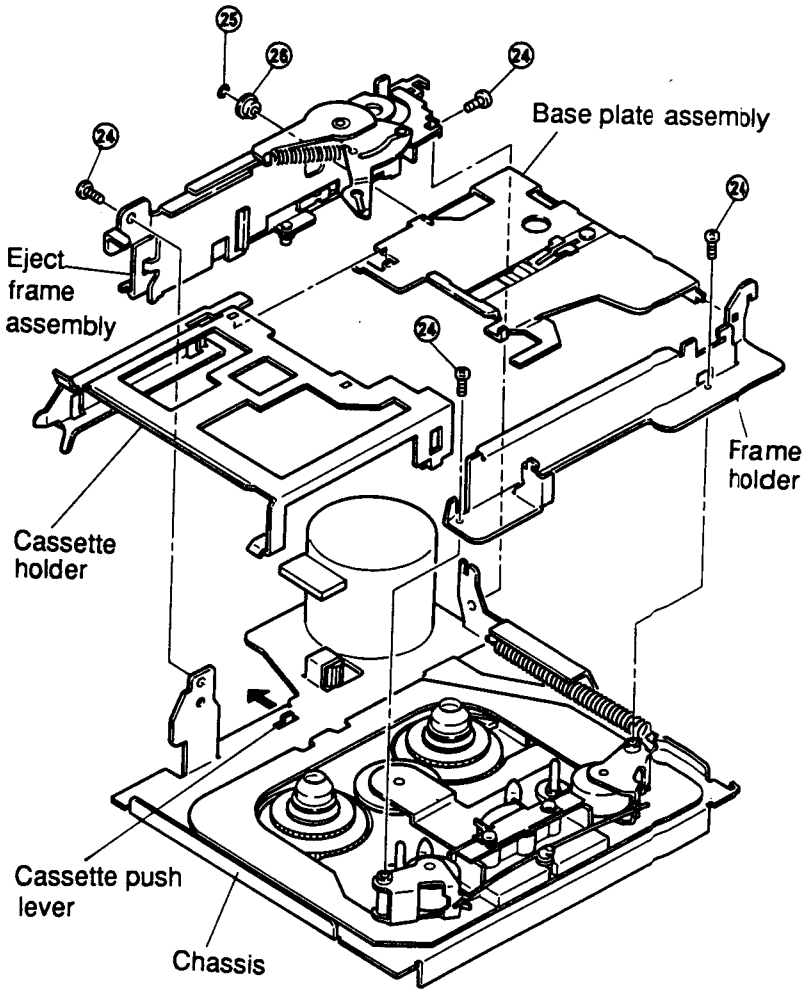


Figure 17

c. Disassembly and assembly of the cassette holder
(1) Remove four screws ㉔ and remove the eject frame assembly and the frame holder as shown in Figure 17.
(2) Remove M1.2 lock washer ㉕ and plate base roller ㉖ and remove the cassette holder and the base plate assembly as shown in Figure 17.
(3) Remount them following the removal steps in the reverse order.

Notes: 1. When mounting the cassette holder and the base plate, insert the slider shaft into the eject arm and fix them turning the slider shaft in the direction indicated by the arrow in the figure. Make sure that the cassette holder and the base plate are in the cassette-in mode during this operation. (Refer to Figure 18).
2. When mounting the eject frame assembly, push the cassette push lever in the direction indicated by the arrow in the Figure 17.
3. When mounting the base plate assembly and the eject frame assembly, or when mounting the eject frame assembly to the chassis, do not apply excessive force to avoid deformations of the eject arm and the frame.
4. Do not reuse the used washers. Take care to avoid damage by piercing and tearing.

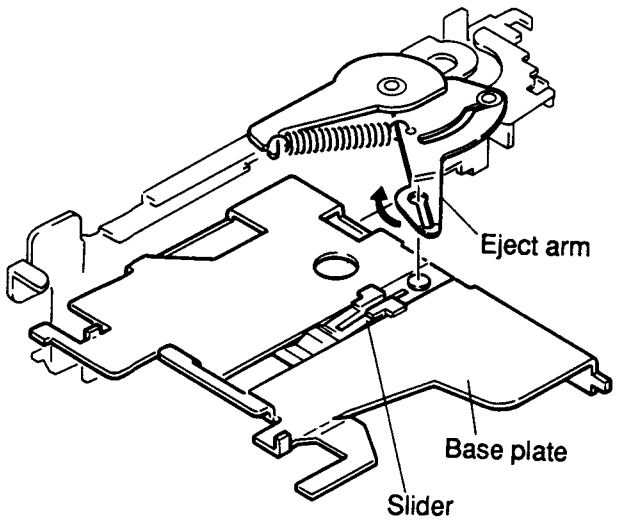


Figure 18

d. Replacement of the reels
(1) Remove M1.7 lock washers ㉘ (Refer to figure 19).
(2) Move the select lever in the direction marked Ⓓ-1 in the Figure and remove the reel by gripping the reel gear as shown in Figure 19.
(3) After replacement, mount the new reels following the removal steps in the reverse order.
(4) After mounting, check the tape speed and the wow and flutter with test tape MTT-III.

Note: Since the reel is easily loosened if the cap is gripped, always handle it gripping the gear. Do not reuse the used washers. Take care to avoid damage by piercing and tearing.

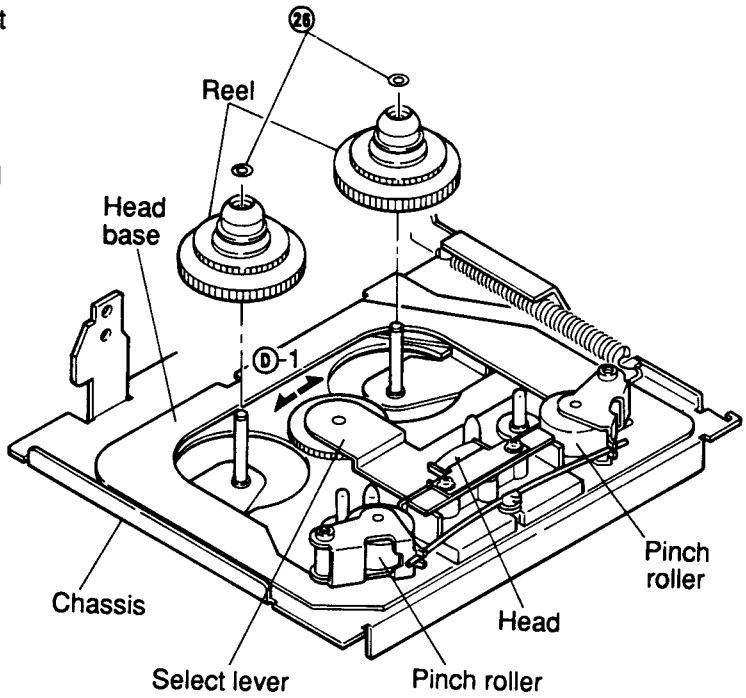


Figure 19

e. Replacement of the pinch rollers

(1) Remove pinch roller spring ㉗ as shown in Figure 20.
(2) Remove M3.1 lock washers ㉘ and remove the pinch roller as shown in Figure 20.
(3) Mount the pinch rollers following the removal steps in the reverse order.
Apply insulation coating to the position Ⓓ-2 of the pinch roller as shown in Figure 20.

Note: Make sure that the pinch rollers are thoroughly fixed and that they are not deformed. Do not reuse used lock washers. Take care to avoid damage by piercing and tearing.

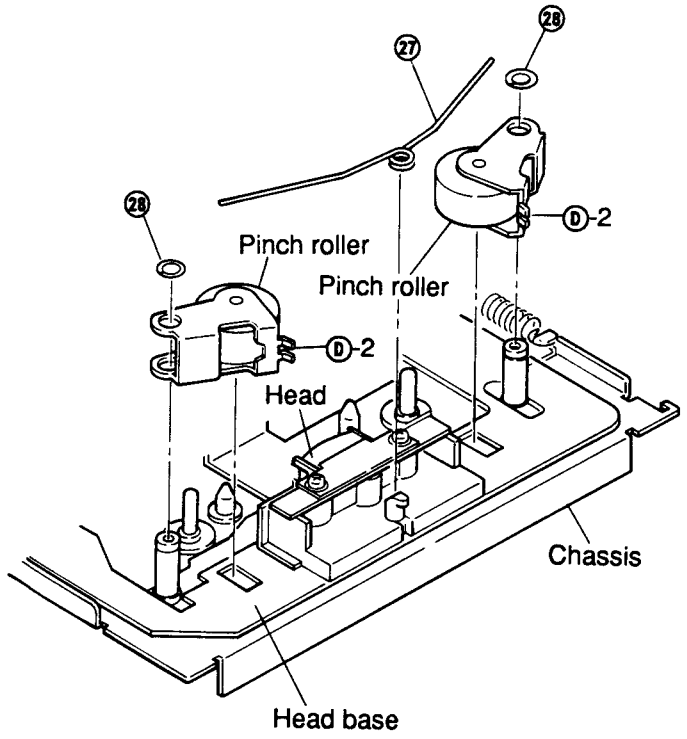


Figure 20

f. Replacement of the head

(1) After removing the pinch roller spring, remove two screws ㉙ as shown in Figure 21.
(2) Remove solder ㉚ and remove the head from the head PC board as shown in Figure 22.
(3) After replacement, mount the new head following the removal steps in the reverse order.

Notes: 1. Refer to Item 2-C to make sure that the temperature of the soldering iron and the soldering time are proper. Do not bring the soldering iron near the head PC board. Make sure that the head PC board is not lifted.
2. Fasten the two screws with a fastening torque of 2.3 kg.cm. Note that the tension of the head spring can be decreased if the screws are fastened too strongly.

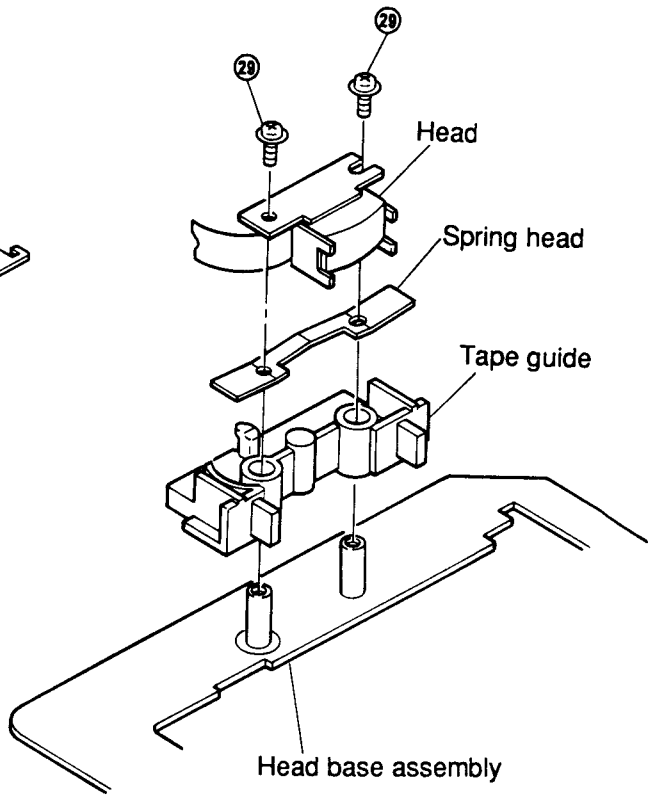


Figure 21

(4) Adjust the height of the head as shown in Figures 23, 24 and 25.

① Place the height adjustment gauge (M-300 or AT-500) on the head base, and adjust the height so that the check bar fits in the tape head guide smoothly.

② When the check bar touches the top (or bottom) of the tape guide, insert a spacer (t 0.1 mm or polislider washer t 0.13 mm). If necessary, remove the spacer.

Note: If you do not have a height gauge like described in ④-①, run the tape at normal speed and adjust the height of the head and the tape head guide so that the tape does not curl.

(5) After having assembled the complete mechanism, adjust the angle of the head with test tape MTT-113C. (Refer to chapter "Adjustment of the head angle".) After the adjustment, apply the screw lock and fix the screws.

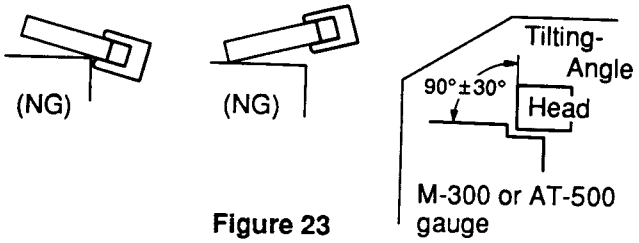


Figure 23

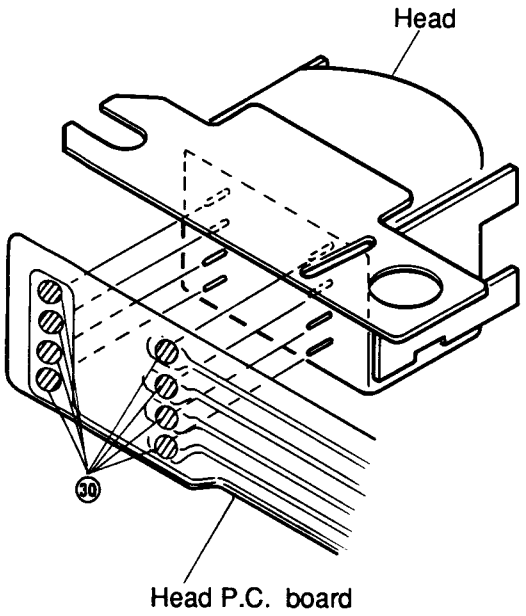


Figure 22

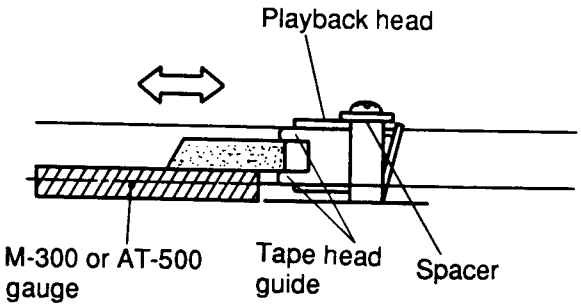
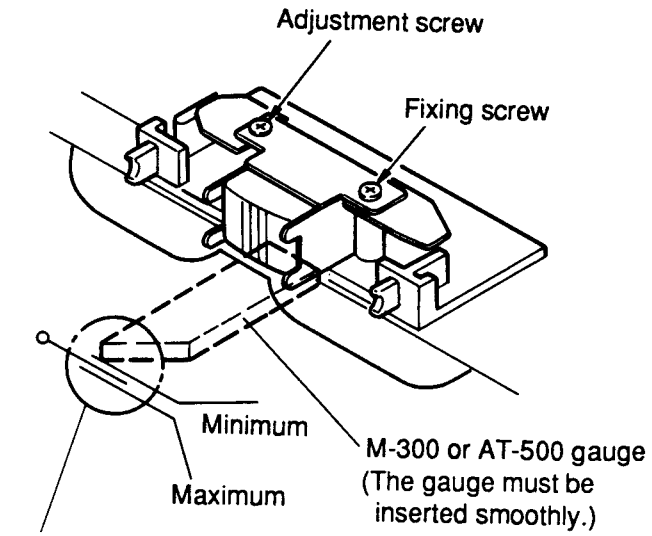


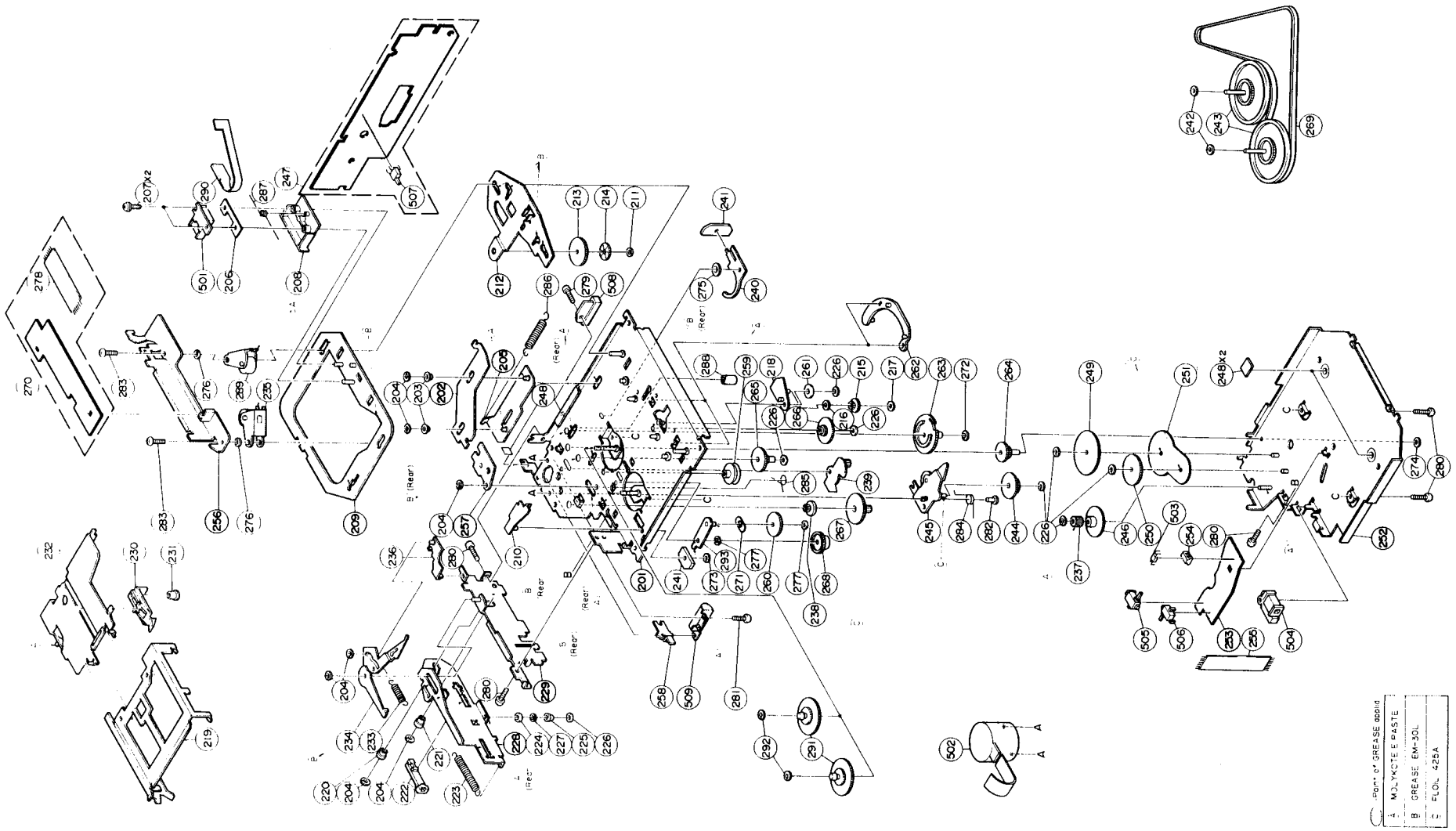
Figure 24



The nosepiece of the gauge must be between the minimum and maximum positions.

Figure 25

Exploded View (Cassette Deck)



Cassette Deck Assembly Parts List

Note : The parts without part numbers are not supplied.

Symbol No.	IN-dex	Part No.	Description
203	3-C	43A11072W01	Roller, Sub Head
204		04A41345P01	Washer, Lock(M1.2)
206	2-B	41A10095W01	Spring, Head
207	2-B	03S40019G03	Screw, F-Locks(M2x4)
208	2-B	43B12545W01	Tape, Guide
210	4-C	01A10206W01	Assy.,Riv Lever R/F Sol
211	2-D	04A41345P29	Washer, Lock(M2.6)
213	2-D	44A10295W01	Gear, Sensor
214	2-D	14A10681W01	Reflector
215	3-E	44A10142W01	Gear, Planet
216	3-E	41A10097W02	Spring, Clutch
217	3-E	04A41345P31	Washer, Lock(M1.7)
218	3-E	01A10203W01	Assy.. Riv Lever Reverse
219	4-B	07B10074W01	Holder, Cassette
220	5-B	43A12583W01	Roller, Eject
221	5-C	43A63281F01	Roller, Plate Base
222	5-C	44A82206F01	Rack
223	5-C	41B10386W03	Spring, GR(Rack)
224	4-C	43A10121W01	Roller, Eject A
225	4-D	43A10360W01	Roller, Eject B
226		04A41345P11	Washer, Lock(M1.2)
227	4-D	43A12377W01	Roller, Eject C
230	4-A	45B10376W01	Slider
231	4-B	47A63278F01	Shaft, Slider
232	4-A	01A10212W01	Assy..Riv Plate Base
233	4-C	41B10386W01	Spring, Eject Arm
234	4-B	01A10148W01	Assy.. Riv Eject Arm A
235	3-B	01B10381W02	Assy.. Pinch Roller
236	4-C	01A10202W01	Assy.. Riv Lever Pack In SW
237	4-F	44A12975W01	Pinion, Eject
238	4-E	44A13617W01	Gear, Motor Idler(B)
239	3-E	01A10201W01	Assy.. Riv Lever Pause
240	2-D	45A10092W01	Lever, Play
241		76T10374W01	Chip
242	1-G	04S40075G05	Washer Polyslider (M2.1)
243	1-G	01A10368W01	Assy., Flywheel
244	3-F	44A10141W01	Gear, Eject Idler
245	3-E	01A10205W01	Assy.. Riv Lever Clutch A
246	3-F	44A10145W01	Gear, Eject
247	2-B	01V11500W18	Assy.. GR Control
248		43A90918F01	Spacer, Polyslider
249	3-F	44A11063W01	Gear, Bottom A
250	3-F	44A11064W01	Gear, Bottom B
251	3-G	04A11122W01	Washer, GR
254	3-G	15B11065W01	Guide, Photo
255	4-G	30T15126W01	Wire, PC Sensor(7P)
258	4-D	45A10101W01	Lever, Eject Sol
259	3-D	49A10131W01	Pulley, Idler
260	4-E	44A10133W01	Gear, Take Up
261	3-E	44A10134W01	Gear, Sun
262	3-E	44B10135W01	Gear, Fix
263	3-E	44B10136W01	Gear, Pause
264	3-F	44A10137W01	Gear, Pause Idler A
265	3-D	44A10379W01	Gear, Pause Idler B
266	3-E	44A10138W01	Gear, Reverse Idler
267	3-E	44A10139W01	Gear, Motor Idler
268	4-E	44A11062W01	Gear, Reel Idler
269	1-G	42A10380W01	Belt, GR
● 270	3-A	01V14700W68	Assy.. GR Audio
■ 270	3-A	01V11500W19	Assy.. GR Audio
▲ 270	3-A	01V11500W19	Assy.. GR Audio
271	4-D	41A10097W02	Spring, Clutch
272	3-F	04A41345P15	Washer, Lock(M1.2)
273	4-D	04A41345P02	Washer, Lock(M1.7)
274	3-H	04A41345P17	Washer, Lock(M1)
275	2-D	04A41345P30	Washer, Lock(M3.1)
276	3-B	04A41345P32	Washer, Lock(M3.1)
277		04A41345P06	Washer, Lock(M2.1)
278	2-A	30T15126W02	Wire, PC Joint 7P
279	2-D	03S44205G78	Screw, Pan(M2x6)
280		03S44205G30	Screw, Pan(M2.6x4)
281	4-D	03S72235F38	Screw, Pan(M2x3.3)
282	3-F	03A12132W02	Screw, Eject Clutch (M2x2.3)
283		03S43997P64	Screw, Pan(M1.7x3)
284	3-F	41A10384W01	Spring, Eject Clutch
285	3-E	41A10385W01	Spring, Cas Push
286	2-C	41B10386W02	Spring, Sub Head
287	2-B	41A10387W01	SP, Pinch Roller
288	3-D	43A12719W01	Roller, Pause
289	3-B	01B10381W01	Assy.. Pinch Roller

Notes : ● ; For GR75E020 model only ■ ; For GR75E010 model only
▲ ; For GR75E01A model only Others ; Common

Symbol No.		Index	Part No.	Description		
	290	2-B	84T10367W01	Panel. Head		
●	291	4-E	01T15164W01	Assy.. Reel		
■	291	4-E	01T15164W01	Assy.. Reel		
▲	291	4-E	01T15164W02	Assy.. Reel		
	292	4-E	04A41345P12	Washer. Lock(M1.7)		
	293	4-D	01A11078W01	Assy.. Riv Lever Take Up		
Miscellaneous						
●	501	2-B	88T15971W01	Head		
■	501	2-B	88T10373W01	Head		
▲	501	2-B	88T10373W01	Head		
	502	4-E	01V11500W64	Assy.. Motor		
	503	3-G	51T15144W01	Sensor. Photo		
	504	4-G	01T10371W01	R/F Sol. Assy.		
	505	4-F	40T15382W01	SW.. Detector (Pack Down)		
	506	4-G	40T15382W01	SW.. Detector(Metal)		
	507	2-C	40T15222W01	SW.. Detector (Pack In)		
	508	2-D	01T15249W01	Assy.. Play Solenoid		
	509	4-D	01T10369W01	Assy.. Eject Solenoid		

Notes : ● ; For GR75E020 model only ■ ; For GR75E010 model only
▲ ; For GR75E01A model only Others ; Common